

BULLETIN No. 81

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In this publication we welcome to our staff, Mr. F. Stewart Graham, who will assist your Editor in his duties. To the majority of our readers Mr. Graham needs no introduction through his fine work in our Bulletin 72 and the many articles contributed to our regular publications. Coming from a railroad family he has had the opportunity of railroading at first hand and we appreciate his willingness to help with our little publication.

In this bulletin we are continuing the series of papers of both Messrs. Newton and Allen. This will almost close the papers from the former, leading to the formation of the C. B. & Q. R. R., but, he has contributed additional papers dealing with their locomotives, etc., which will appear subsequently and which we are sure will interest our members. We want to welcome the efforts of Mr. Lindsay, a new contributor to our columns, for his paper on the Memphis Branch of the L & N. We also appreciate the kindness of those that have contributed additional notes to the Norris paper in our Bulletin 79.

Your Editor has already expressed his opinions as well as the reasons for the publication of the article on the New Zealand Railways. The chief reason for its publication is to assist that New Zealand group organized on lines similar to our own but, to one interested in the steam locomotive and its development and, to those interested in narrow gauge railways, he fails to see why this particular system of railways should not be of general interest to our membership.

Railroad history is where you find it—sometimes in unexpected places. Early guide books, biographies, etc. sometimes reveal something new in railroad history and the two contributions submitted by Mr. Greene with that from Mr. Withington will, I am sure be of interest.

Cover Design

It was our intention to have on the cover of our Bulletin No. 80, a design submitted by Mr. C. B. Medin of a pretty little 4-4-0 type locomotive on the Illinois Central and we had a nice little paragraph for the artist and his sketch. Somewhere between the printing plant and the engraver, the sketch went astray and could not be located—and this was not discovered until the cuts had all been made and the proof was ready for a final O. K. One of the older cuts was hastily pressed into service and the one of the Eddy locomotive that adorned our Bulletin 69 was used. Mr. Medin has kindly submitted another design and this we are sure will be used because the cut has already been made. It depicts one of the Mountain type locomotives on the Lehigh & Hudson River R. R., Baldwin-built, a group of locomotives that closely resembles the locomotives of the same type from the same builder that came to the Boston & Maine, the majority of them having been subsequently sold to the Baltimore & Ohio R. R. We thank Mr. Medin for his patience as well as his kindness in submitting his work for the benefit of our members.

Bulletin 54

Word has just been received from Mr. George Banta, Jr., President, George Banta Publishing Co., Menasha, Wisconsin, that a limited number of copies of this bulletin has been discovered in their stock room. This bulletin, published by Mr. Banta in 1941, was a special bulletin on the History of the Wisconsin Central R. R., author, Mr. Roy L. Martin. Mr. Banta will sell these copies as long as they last at \$2.00 per copy and orders should be addressed to him as above.

Steam Locomotives of the New Zealand Government Railways

1872-1949

*Compiled by T. A. McGAVIN, Honorary Editor,
New Zealand Railway Observer*

INTRODUCTION

For some considerable time, members of the New Zealand Railway and Locomotive Society have been collecting data relating to locomotive development in New Zealand and it is now possible to present, as an introduction and guide to further study of a fascinating subject, a broad outline of locomotive development from 1872 to the present day and a comprehensive list showing the total number of engines of each class supplied by the various makers. It is unfortunately not possible at present to provide complete details—with tabulated dimensions, makers' numbers, and road numbers—of every class of locomotive (information which very many members are keenly awaiting), but it is thought that the present contribution will be welcomed by members as a preliminary installment.

Readers are asked not to accept the outline of locomotive development given in this small publication as complete or final in any sense. It is certain that many important developments in locomotive practice in this country will have been overlooked or omitted, or touched upon lightly, in this necessarily sketchy outline, in some cases because the information so far available to us is incomplete. In this connection we may throw out the suggestion that there is ample scope for further research by locomotive enthusiasts into the experiments leading up to such notable changes in locomotive practice as the general adoption of the Walschaerts valve gear, piston valves, inside-admission valves and superheating. The evolution of such other details as lubricators, injectors, sanding gear and power reverse equipment could also provide interesting stories.

The information given in this Supplement is as accurate as it is possible to make it from data at our disposal, and here it is a pleasure to express particular appreciation of the immensely valuable assistance given by members of the Society, among them Messrs. A. N. Palmer, M. Botten, J. W. Sutherland, R. D. Grant, A. C. Bellamy and I. T. G. Johnstone, in providing information and checking "Copy."

It is hoped that this small publication will prove to be a useful source of reference and that it will stimulate the interests of the New Zealand locomotive enthusiasts.

DEVELOPMENT OF THE STEAM LOCOMOTIVE IN NEW ZEALAND, 1872-1949

Since 1870, when Julius Vogel's famous Immigration and Public Works programme became the law of the land and a railway track gauge of 3' 6" was adopted as the standard for all future main-line construction, more than a thousand steam locomotives for that gauge (not including rebuilds) have been built for the New Zealand Government Railways and constituent companies. A number of earlier locomotives built for broad-gauge and standard-gauge railways initiated by Provincial Governments are outside the scope of this survey.

The first of the 3' 6" gauge locomotives comprised a remarkable diversity of types and classes, no less than twenty different designs being distinguishable among the 210 or so engines built by 1880. All, however, had one feature in common; a smallness of size. Because of a strict limitation on the amount which could be spent on railway construction per mile, light track and light bridges, and consequently lightweight locomotives had to be the rule. A somewhat restricted loading gauge, probably the most restricted of any for a 3' 6" gauge main-line railway, was unfortunately also adopted about the same time. Maximum axle loading of most of these early locomotives was less than seven tons.

Before 1877 only one type of tender engine had been introduced, this being a small 2-6-0 design which was later classified "J." The remainder were small tank engines, mostly four-coupled, including a number of "Double Fairlie" articulated locomotives, a new type which had lately come into prominence following some remarkable performances on the narrow-gauge Festiniog Railway in North Wales. A batch of "Double Fairlie" engines built by the Avonside Engine Company in 1875 were notable in that it incorporated a very early application of the Walschaerts valve motion.

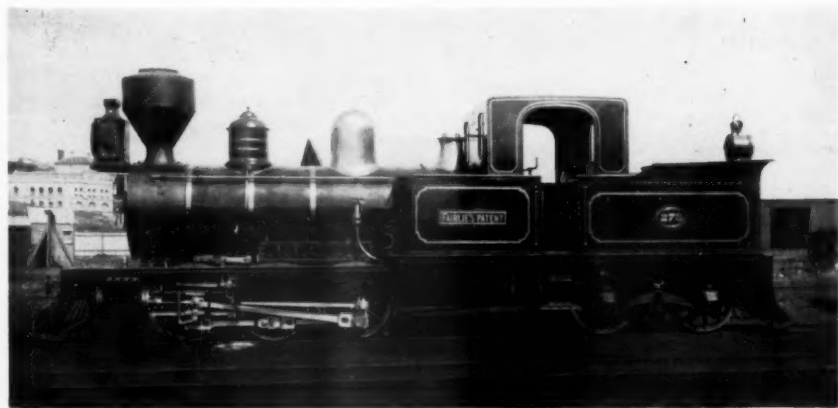
Just who was responsible for locomotive design in the hectic early years of the seventies, we have never been able to fathom, but doubtless the various Public Works engineers connected with railway construction exercised a considerable degree of influence. Certainly Mr. W. N. Blair, who was appointed District Engineer in Otago at the inception of the Public Works Department in 1870, appears to have been intimately connected with the design of the famous "F" 0-6-0 tank locomotive, vide the first annual report of the Department (by John Blackett, Acting Engineer-in-Chief) in 1871. This design was first proposed in connection with the Dunedin & Clutha Railway. Both Messrs. J. Blackett and J. Carruthers (Engineer-in-Chief, who arrived in New Zealand in August 1871 to take up his appointment) probably shared some responsibility for locomotive design in these early years, although they appeared to be more intimately concerned with civil engineering works.

It is also probable that Messrs. Hemans and Bruce, the Consulting Engineers in London to the New Zealand Government, had some responsibility, for we know that the size and dimensions of the four "Fell" locomotives built in 1875 for the Rimutaka Incline were adopted on their advice. The actual design and construction of these engines was under-



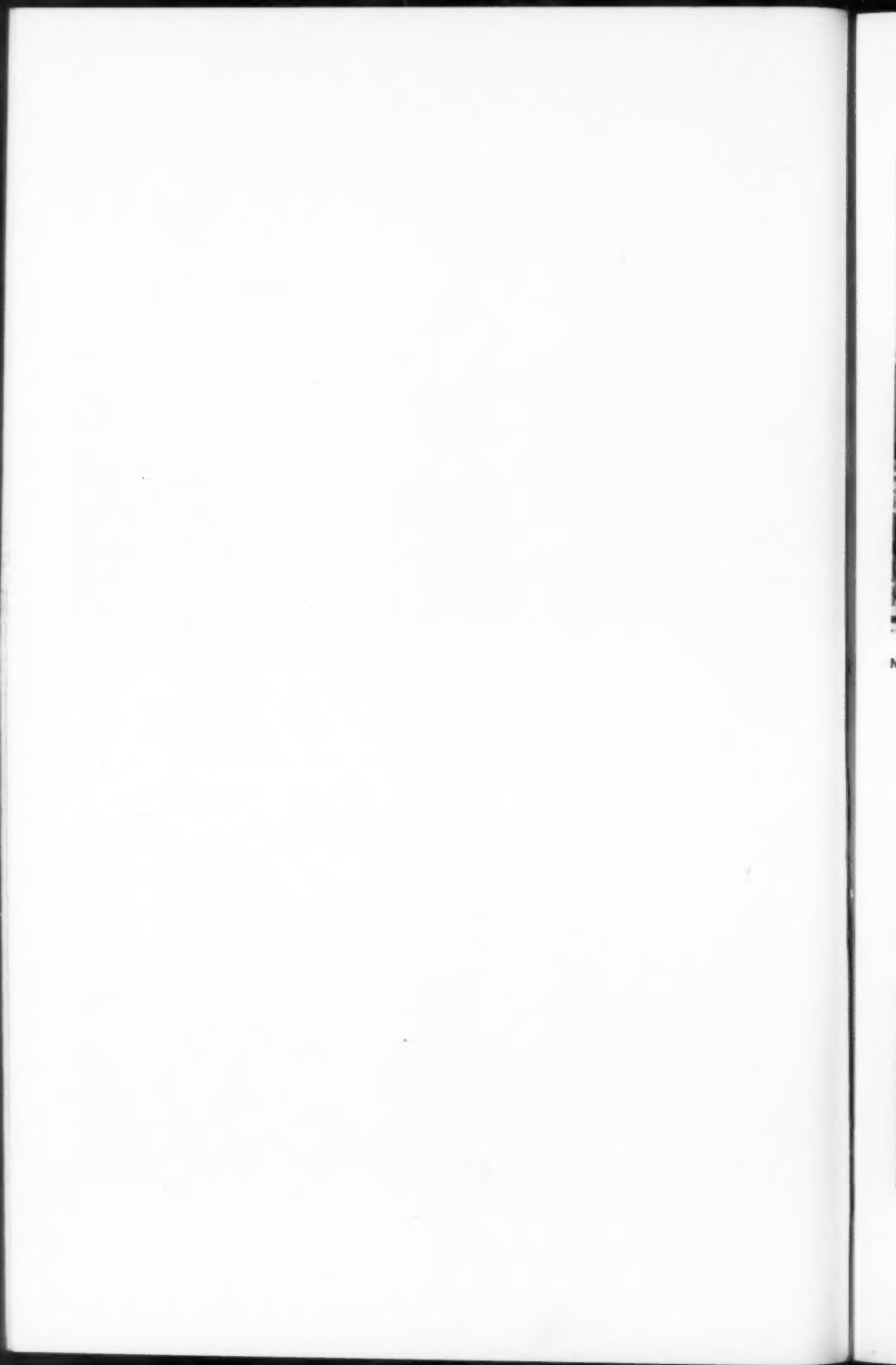
From the W. W. Stewart Collection.

N. Z. G. R. "Snake." First class "B"; #238 after 1890 renumbering. Avonside Engine Company, England, 1874. (4) 9x16". 39". 62700#.



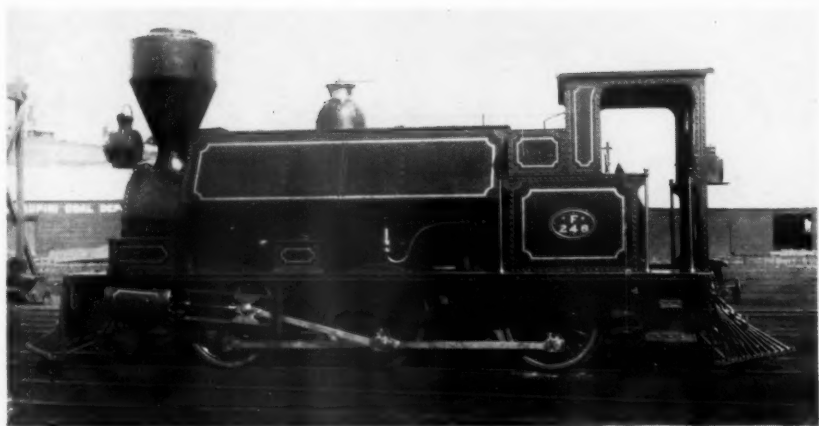
From the W. W. Stewart Collection.

N. Z. G. R. class "R"; #273 after 1890 renumbering. Avonside Engine Company, England, 1878. 12 $\frac{1}{4}$ x16". 36". 74000#.

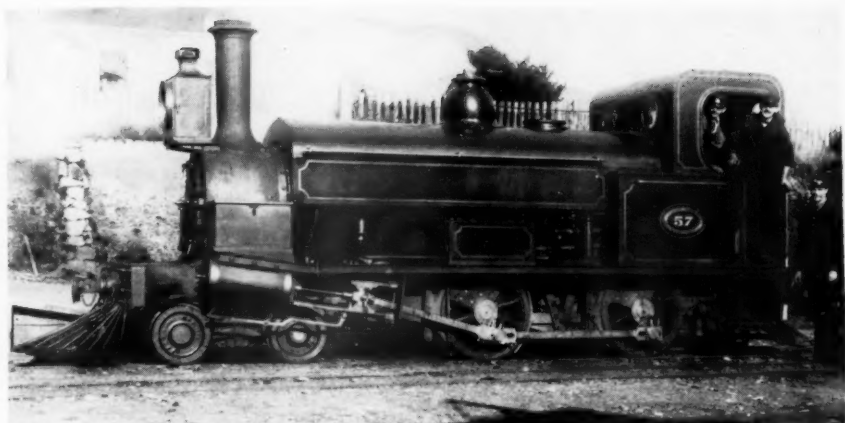




Railways Publicity Photo.
N. Z. G. R. class "D" #149. Neilson and Company, Glasgow, Scotland, 1878. $9\frac{1}{2}$ x18". 36". 33000#.



From the W. W. Stewart Collection.
N. Z. G. R. Class "F"; #248 after 1890 renumbering. Vulcan Foundry Ltd., England, 1875.
 $10\frac{1}{2}$ x18". 36". 43000#.



Railways Publicity Photo.

N. Z. G. R. First Class "G" #57. Black, Hawthorn and Company, England, 1873. $10\frac{1}{2} \times 18$ " 36". 46000#.

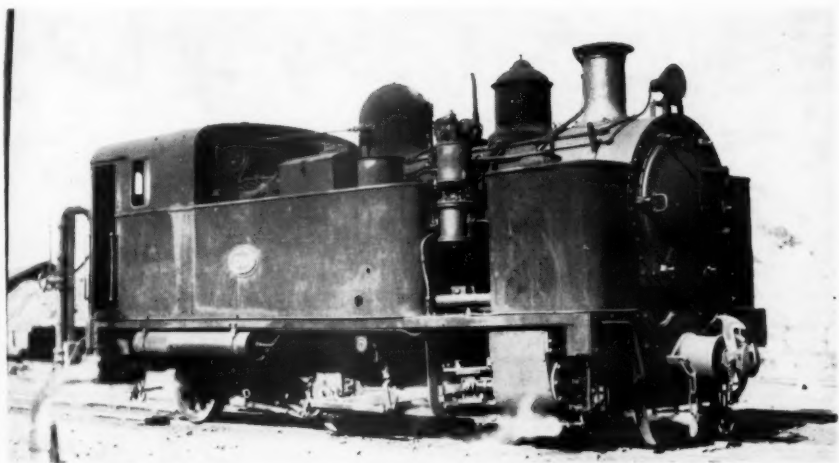
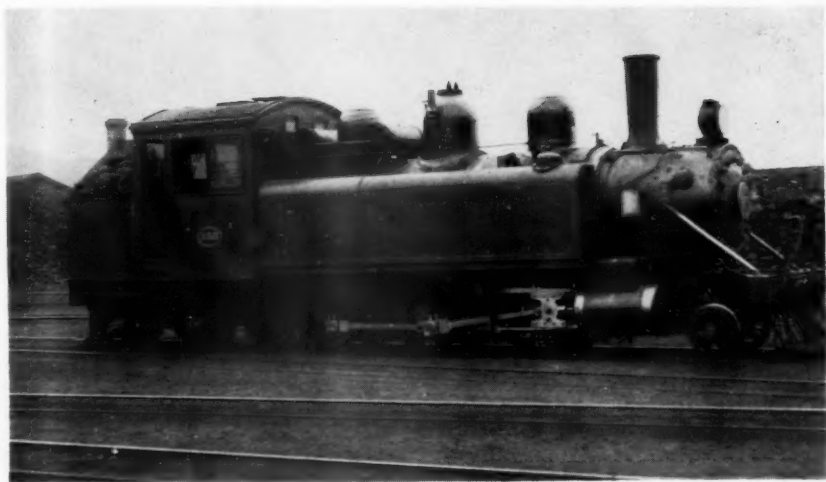


Photo W. W. Stewart.

N. Z. G. R. class "H" #203. Neilson and Company, Glasgow, Scotland, 1886.
14x16" outside and 12x14" inside. 32". 88000#.

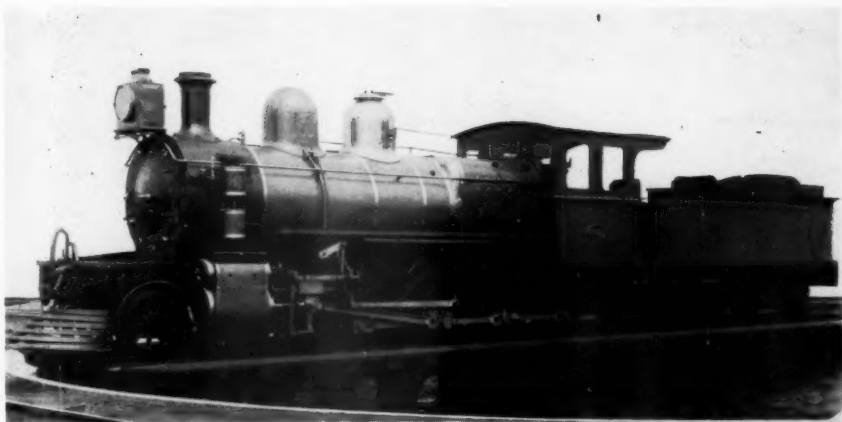
Rimutaka Incline "Fell" type locomotive. Inside horizontal grip wheels $23\frac{1}{2}$ " diameter.



From the S. A. Rockliff Collection.
 N. Z. G. R. Class "Wd" #355. Baldwin 1901. 14x20". 39 $\frac{3}{4}$ ". 98000#.



Photo W. W. Stewart.
 N. Z. G. R. class "Wab" #803. A. and G. Price Limited, Thames, 1927. 17x26". 54". 160000#.

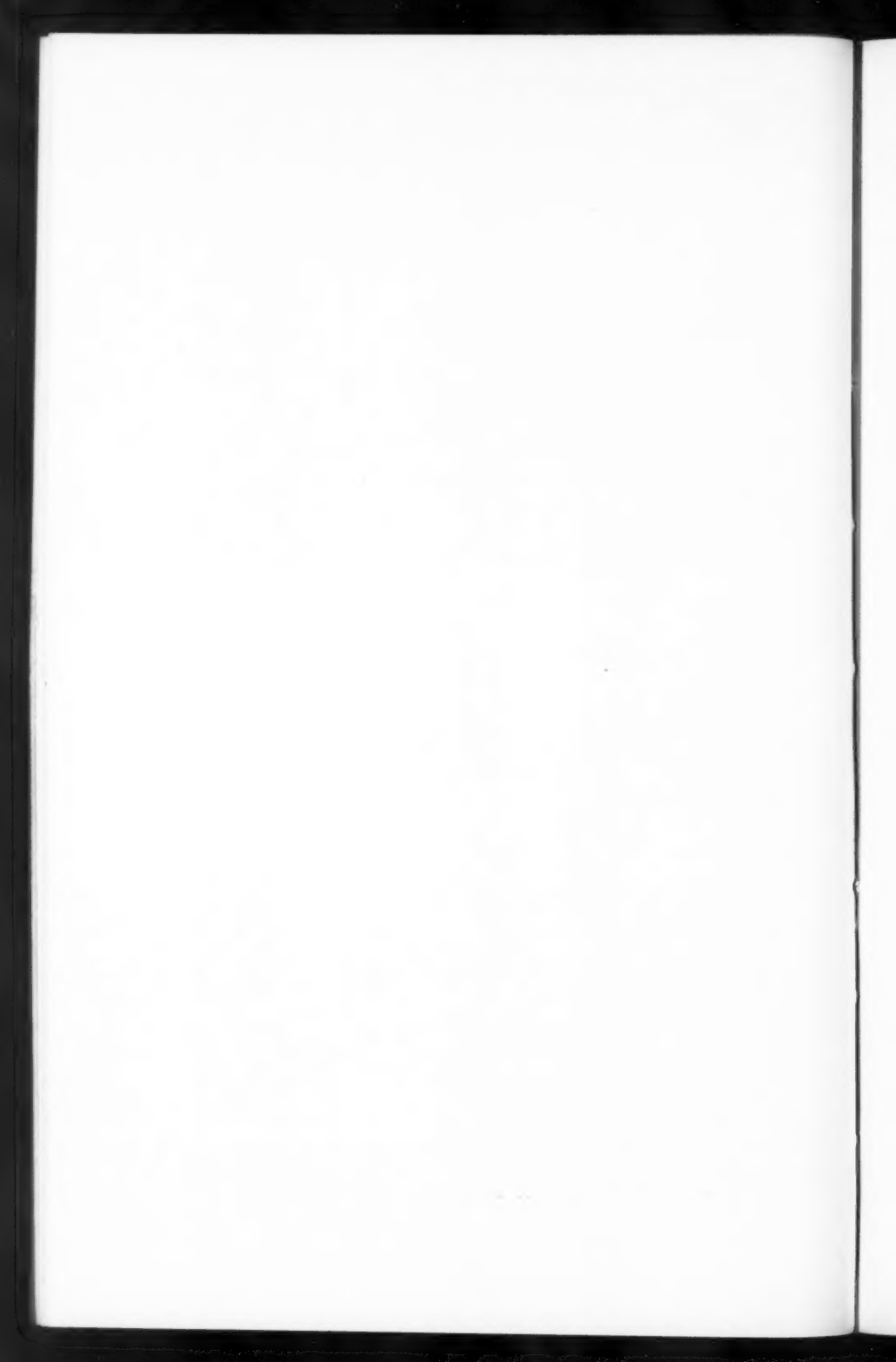


N. Z. G. R. class "B" #302. Addington Workshops 1899. 16x22". 42". 94000#.



N. Z. G. R. class "T" #103. Baldwin 1879. 15x18". 36". 63000#.

From the S. A. Rockliff Collection.



taken by the Avonside Engine Company, Mr. W. H. Widmark being the engineer responsible for their design.

Later, in the same decade, a Mr. Allison D. Smith was Locomotive Engineer at Christchurch and he appears to have had much to do with the acquisition of the racy American 2-4-2s of class "K" and the small-wheeled 2-8-0s of class "T." The latter were New Zealand's first eight-coupled locomotives.

With the rapid growth of the railway system, the organization of the Railways Department (or Working Railways Department, as it was termed after its separation from the Public Works Department) was revised in 1880, and it was about this time that a Locomotive Superintendent for the whole system was first appointed. Dr. Allison D. Smith was appointed to this position, which he held until 1885, Mr. T. F. Rotheram being his successor. In later years the designation "Locomotive Superintendent" was altered to "Chief Mechanical Engineer."

Further new designs ordered during the Smith regime were some 2-6-2s and 2-8-0s from an English builder, classified as "V" and "P" respectively, but trouble was experienced with excessive weight and an urgent order had to be sent to the Baldwin Locomotive Works in the United States for some similar locomotives, classes "N" and "O" to tide over until the English engines could be suitably modified. Following this experience, no more locomotives were ordered from overseas for the Government Railways for over twelve years.

Some time after Mr. Rotheram became Locomotive Superintendent, a policy of building new locomotives in N. Z. R. workshops was adopted, the first such locomotive being a 2-6-2 tank, class "W," completed in 1889, while during the nineties the rebuilding and modernization of old locomotives became a popular practice. It is interesting to note that the two examples of class "W" are still in service at Greymouth. These were not the first locomotives built in New Zealand, but the first built in the New Zealand Ry. workshops. In 1892 class "Wa" appeared; this was merely a "W" with larger wheels. Most important of the other new classes to be introduced during the nineties were a general purpose 4-6-0 with 4' 6" wheels, class "U," in 1894, and a 4-8-0 goods engine with 3' 6" wheels, class "B," in 1899.

The capacity of the N. Z. R. workshops to produce new locomotives, however, was very limited and about the turn of the century railway extensions and the general growth of traffic resulting from increasing population, with the consequent increasing demand for motive power, meant that large orders had to be placed overseas, in both England and America, for new locomotives. No less than 85 engines were built overseas between 1898 and 1901, most of them being variations of the 4-6-0, 4-8-0, and 2-6-2T types regarded then as standard.

In 1901, or possibly late 1900, Mr. Rotheram left for Perth and chieftainship of the locomotive department of the Western Australian Government Railways and was succeeded by Mr. A. L. Beattie, and some of the later 1901 importations showed some particularly interesting developments. On the one hand, there was a batch of 2-6-4 tank engines from Baldwin's developed from the earlier 2-6-2 type; and on the other hand there were thirteen class "Q" Pacific type locomotives, also from

Baldwin's. The latter are regarded as the world's first true Pacific type locomotives.

The first new class of locomotive introduced by Mr. Beattie from New Zealand railway workshops was the "Wf" 2-6-4T in 1904, a useful engine of which 41 examples have subsequently been built. Then came the era of the balanced compounds, following the success of this system in Europe. The forerunner of a long series of 4-cylinder Pacifics classified "A" was placed in service in 1906, and the first of 18 ponderous 4-8-2s (also four cylinder compounds) followed up at the end of 1908. This first 4-8-2—possibly the first in the world with this wheel arrangement—actually went into service in January 1909. Building of these two classes continued right to the end of Beattie's term in 1914.

Two other Beattie classes were the "Wg" 4-6-4T's, a clear development of the "Wf" with a larger boiler, in 1910; and a "Ba" 4-8-0s in 1911. The latter were superheated versions of the 1899 class "B." A superheated version of the "Wg" 4-6-4T with larger cylinders appeared in 1913, being later classified as "Ww." Finally in 1914, to satisfy an urgent demand for additional motive power which could not be met by New Zealand workshops, there came a batch of superheated 2-cylinder simple "Pacifics" with 4' 1" driving wheels from the Baldwin Locomotive Works.

In 1908, a stud of twenty locomotives was taken over by the Government Railways as part of the stock-in-trade of the Wellington and Manawatu Railway. Included in this most interesting group, which had been obtained from overseas builders to the successive requirements of Messrs. Higginson, A. R. W. Fulton, J. E. Fulton and J. Marchbanks, were nine 2-6-2s for general service and four 2-8-0s for the heavy freight trains, but there were also some other fascinating engines, such as a massive 2-8-4 tank brought out in 1904 primarily for banking trains up the notorious 1 in 36-40 Johnsonville bank out of Wellington, two graceful high-wheeled 4-6-0s for passenger service, and a substantial 2-8-2 (the only one of its kind in New Zealand) which derived from the earlier 2-8-0s. The "Tenwheelers," which became the N. Z. R. Class "Ud," were distinguished by the largest coupled wheels ever used on the 3' 6" gauge in New Zealand—4' 10" in diameter. Many are the tales of these slim-built, high-stepping young things racing over the plains at a mile a minute with the "Fast Mails" of the period! One of the smaller-wheeled 2-6-2s, indeed, set up a world record for the 3' 6" gauge in 1892 when she covered 15 miles over the Makerua Plains in "even time" with a featherweight test train of about 25 tons. The absolute maximum speed was 64.4 m.p.h., and the engine concerned was No. 10, later N. Z. R. "N" 454.

Four of the Manawatu Railway 2-6-2s, two of the 2-8-0s, and the 2-8-2, built between 1896 and 1904, were compounded on the Vaucain system, which was evidently found reasonably successful, although the 4-6-0s and 2-8-4T of 1904 were 2-cylinder simple engines of more conventional design. The success of Vaucain compounding elsewhere in the early nineties led the Government Railways to entertain similar ideas and in 1895 one of their 1885 "N" class 2-6-2 locomotives was altered to this system. Results, however, apparently were considered not worth the effort, for no more engines were converted. The surplus stock of

cylinders which had been obtained in anticipation were eventually used in 1906 on a most unconventional machine, since always known as "Pearson's Dream," after the Chief Draughtsman, Mr. G. A. Pearson. This queer-looking, but massive locomotive was a 2-6-6-0 tank with cylinders both fore and aft, described as a "Modified Mallet". It was intended principally for the Rimutaka Incline but was found unsuitable for that arduous service, and most of the work it did during its short life was as a banker out of Wellington to Johnsonville. It was most unpopular with engine crews.

It may be appropriate to mention here that details of the design of N. Z. R. locomotives do not appear generally to depend upon the particular whims and fancies of the individual Chief Mechanical Engineers (or Locomotive Superintendents) to the same extent as would appear to be the case on other railways, particularly during the past 50 years. The C. M. E., though responsible to the management for all matters coming within the jurisdiction of the Locomotive Branch, appears to have been concerned principally with operating matters, the Designing Engineer or Chief Draughtsman being responsible for preparing suitable designs to meet the various requirements.

But to return to the "main line" of locomotive development; in 1915 Mr. H. H. Jackson succeeded A. L. Beattie, and in that same year there appeared the first of the celebrated 2-cylinder simple superheated Pacifics of class "Ab." With the advent of superheating, the use of compounding was no longer continued. It is said that several comparative trials were made between the class "A" compounds and the new "Ab" superheated simples, but results of these trials do not appear ever to have been published. Rumour has it that certain drivers produced better and more economical results, from the fuel consumption point of view, with the compounds, but it is obvious that the claims of simplicity and, probably, reduced maintenance costs won the day—just as was the case on so many other railways.

The year 1915 saw also the appearance of another new class, the "Bb." This again was simply a modified version of the 1911 "Ba" 4-8-0 goods engine, the principal difference being an inch extra in the diameter of the cylinders. After these engines and the "Ww" 4-6-4T's were completed, in 1918 and 1919 respectively, no new designs were introduced for nearly ten years. Both Mr. Jackson, and Mr. E. E. Gillon, who succeeded him, were content to rely on multiplication of the numbers of the class "Ab" Pacifics and the tank engine version of the same design, the "Ws" and "Wab" 4-6-4T's. The latter classes, which had been introduced in 1917 and 1918 respectively, were identical in principal dimensions. The chief differences when they were first built were to be found in the positioning of the sand domes and in the weight distribution. The "Ws" class was intended primarily for suburban service and the "Wab" class for short-distance main-line work, such as between Taumarunui and Taihape in the North Island and between Dunedin and Oamaru in the South Island.

Mr. Gillon was succeeded in 1925 by Mr. G. S. Lynde, who is remembered for one particularly bold but unsuccessful experiment, namely the importation of three large, six cylinder Beyer-Garratt locomotives in

1928-29. There seem to have been several reasons for the failure of these engines to settle down satisfactorily. Many mechanical difficulties are said to have been experienced, but, all in all, they were too big for the traffic conditions obtaining in New Zealand at the time. In 1929, also, a high-pressure Clayton geared steam shunting locomotive was tried out, but again with unsuccessful results. The Garratts were rebuilt in 1937 as six 3-cylinder Pacifics, and even these have not been quite the success that one might have hoped. The only lasting reminder of the 1929-30 period is the batch of 24 shunting engines of class "C." In essence, these are tender versions of the "Wf" 2-6-4 tank, though they have rather larger boilers, with wide fireboxes.

From 1930 we enter the modern period, for the present Chief Mechanical Engineer, Mr. P. R. Angus, took over the reins of the Locomotive Branch in 1931 as Locomotive Superintendent, with Mr. R. J. Gard (who retired only last year) as his Designing Engineer. The first fruits of the new regime were the heavy 4-8-4s of class "K" in 1932. These proved to be the answer to the demand for more powerful locomotives. In size and weight, they practically reached the maximum possible for a rigid-frame locomotive within the existing construction-gauge and axle-load limitations. Subsequent examples of the same basic design, classes "Ka" and "Kb," have incorporated various refinements such as the application of roller bearings to all axleboxes throughout engine and tender. The class "G" Pacifics of 1937 have already been mentioned, but in 1939 the need for a new general-purpose locomotive of lighter weight than the "K," for use over secondary main lines, had become evident. Hence the introduction of a lighter eight-coupled locomotive with the 4-8-2 wheel arrangement, forty examples of which were built in 1939 by the North British Locomotive Co., Glasgow. These formed a new class "J," and new engines of the class "Ja" to the same basic design are still being built at the Hillside Workshops in Dunedin.

Today, at the close of 1949, with 624 steam locomotives forming the backbone of the N. Z. R. motive power, although about 235 are more than thirty years old, it seems unlikely that many new classes of steam locomotives will take the rails in this country. The prospect of large-scale electrification will, when it comes to fruition, no doubt release considerable numbers of steam locomotives for scrapping or service elsewhere. The modernization and rebuilding of existing classes, however, may be a prominent feature of future development, a practice which has already been observed recently in the case of the "A" and "Aa" class Pacifics and the "X" class 4-8-2s.

For convenient reference, the following table has been compiled to give an indication of the size and dimensions of the principal classes of steam locomotives which have seen service on the New Zealand Government Railways. The various types have been divided into five groups, typical representatives of each group being listed in chronological order. It is necessary to point out that not all classes are included in this list, which is representative only, but an attempt has been made to cover all the notable variations in weight, cylinder dimensions, coupled wheel diameter, and working pressures. It is also necessary to point out that the figures quoted are, as far as possible, those which applied when the



From the W. W. Stewart Collection.

N. Z. G. R. first class "J"; #259 after 1890 renumbering. Vulcan Foundry Ltd., England, 1883.
14x20". 42". 47000#.



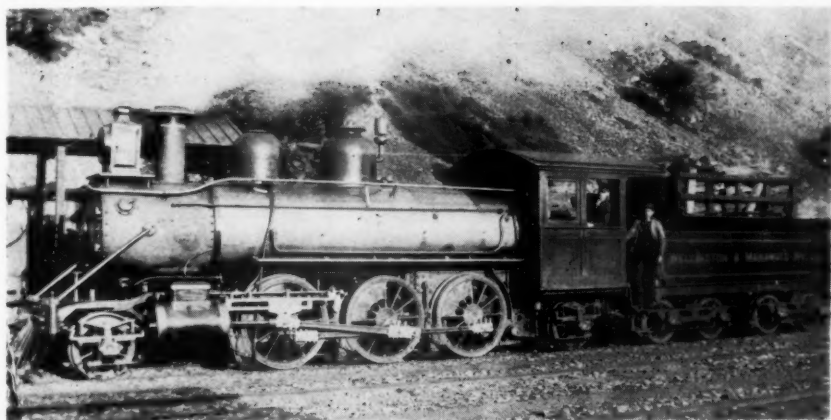
Railways Publicity Photo.

N. Z. G. R. first class "K" #93. Baldwin 1878. 12x20". 48". 52000#.



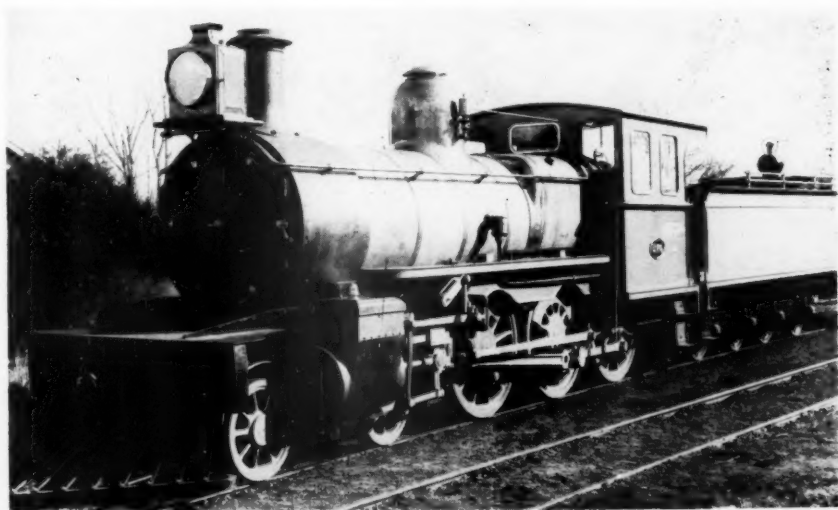
Well





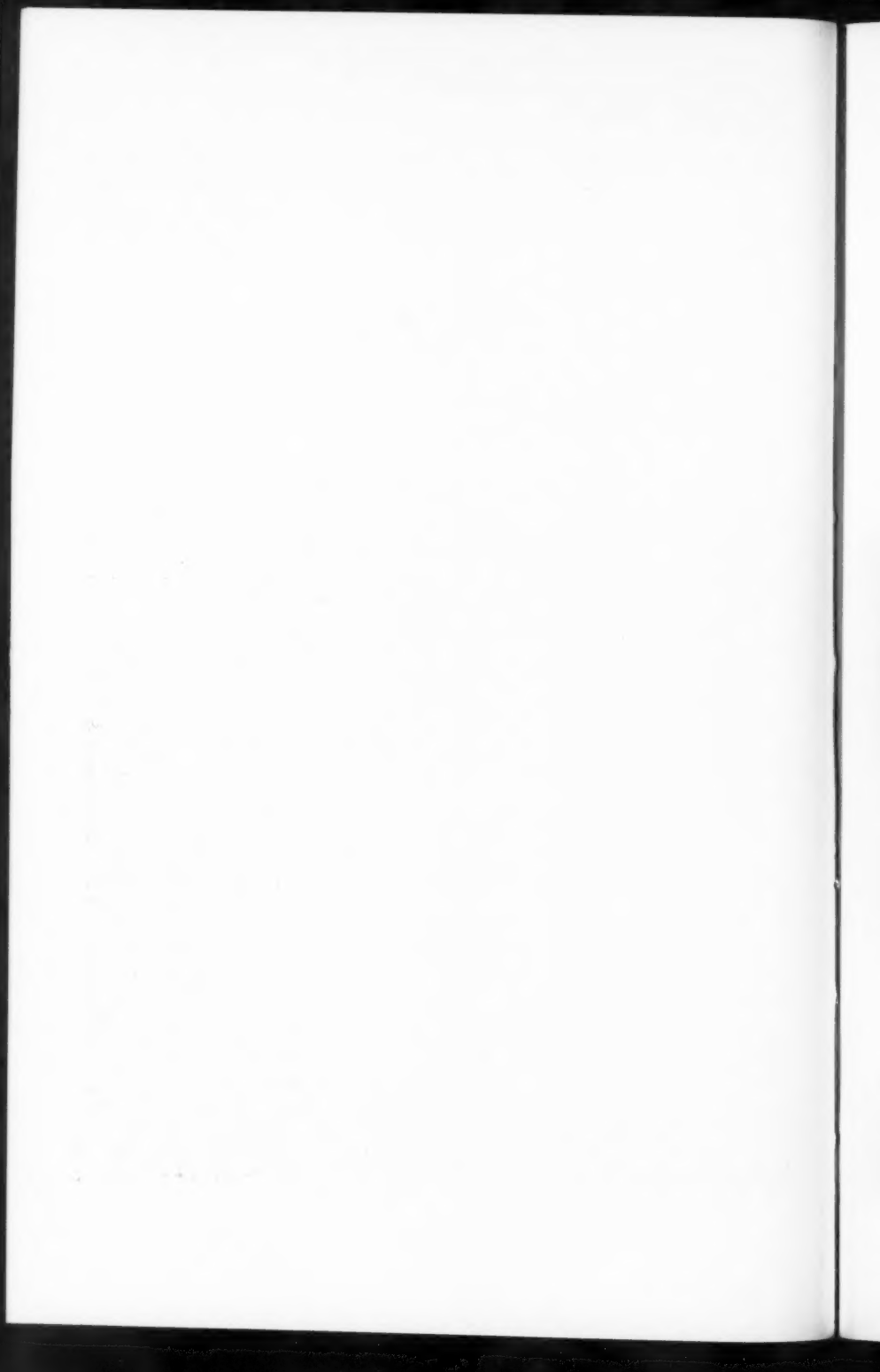
From the W. W. Stewart Collection.

Wellington and Manawatu Railway #10. Baldwin 1891. 15x20". 49". 65000#. (Similar to N. Z. G. R. class "N" and holder of an 1892 speed record of 64.4 m.p.h.)



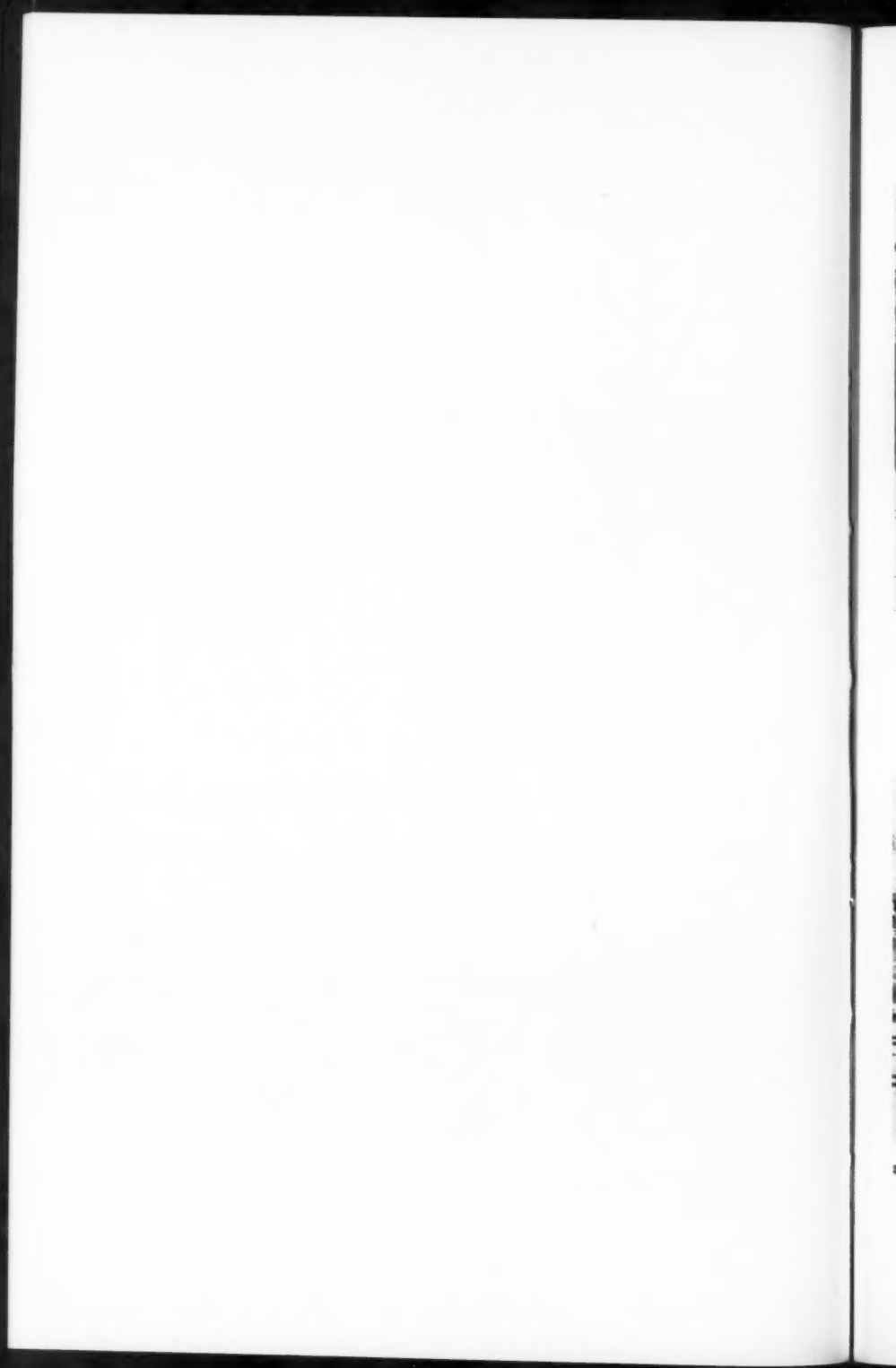
Railways Publicity Photo.

N. Z. G. R. class "U" #274. Addington Shops, 1897. 16x20". 54". 85000#.





Baldwin 4-6-0 class "UB" #332 (built 1901) leaving Christchurch with Rangiora suburban train in March 1950. Railways Publicity Photo.



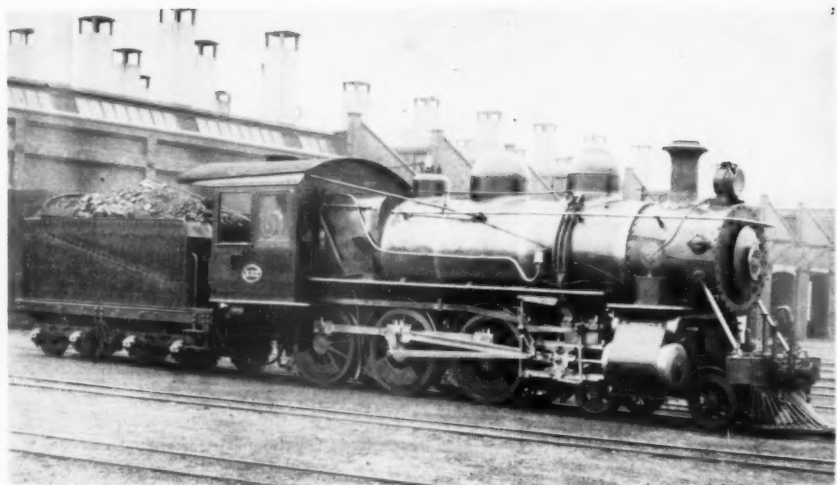
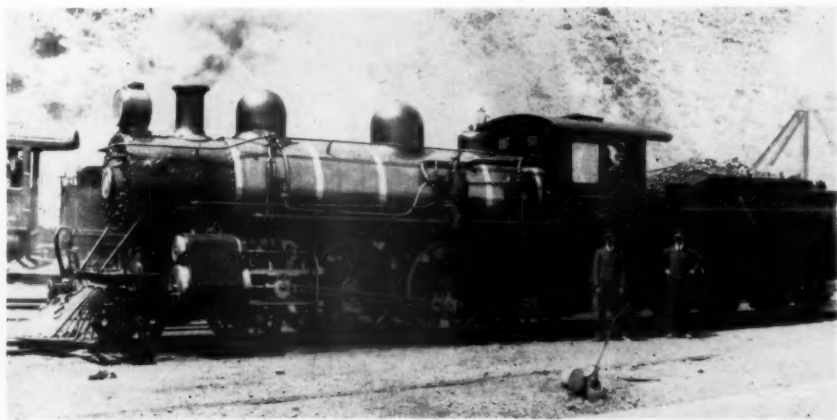


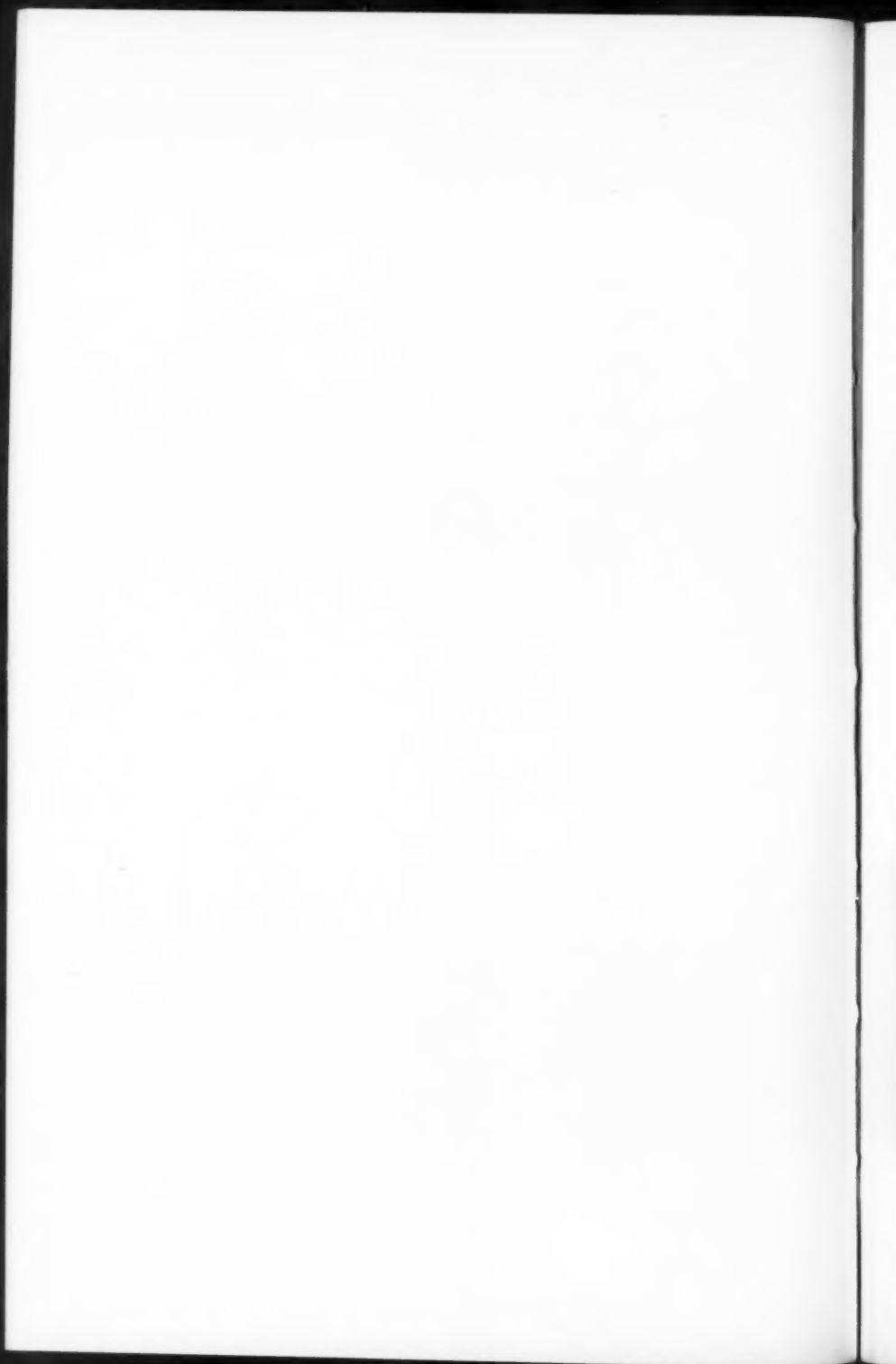
Photo Stan A. Rockliff

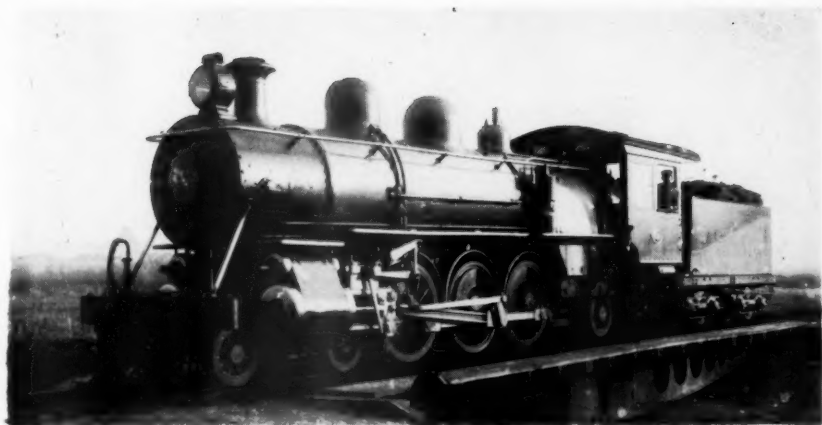
N. Z. G. R. class "Ub" #332. Baldwin 1901. 16x20". 49". 81400#.



Railways Publicity Photo

N. Z. G. R. class "Ud" 465. Baldwin 1904. (Built for Wellington and Manawatu Railway Company; taken over 1908). 16½x22". 58". 88500#.

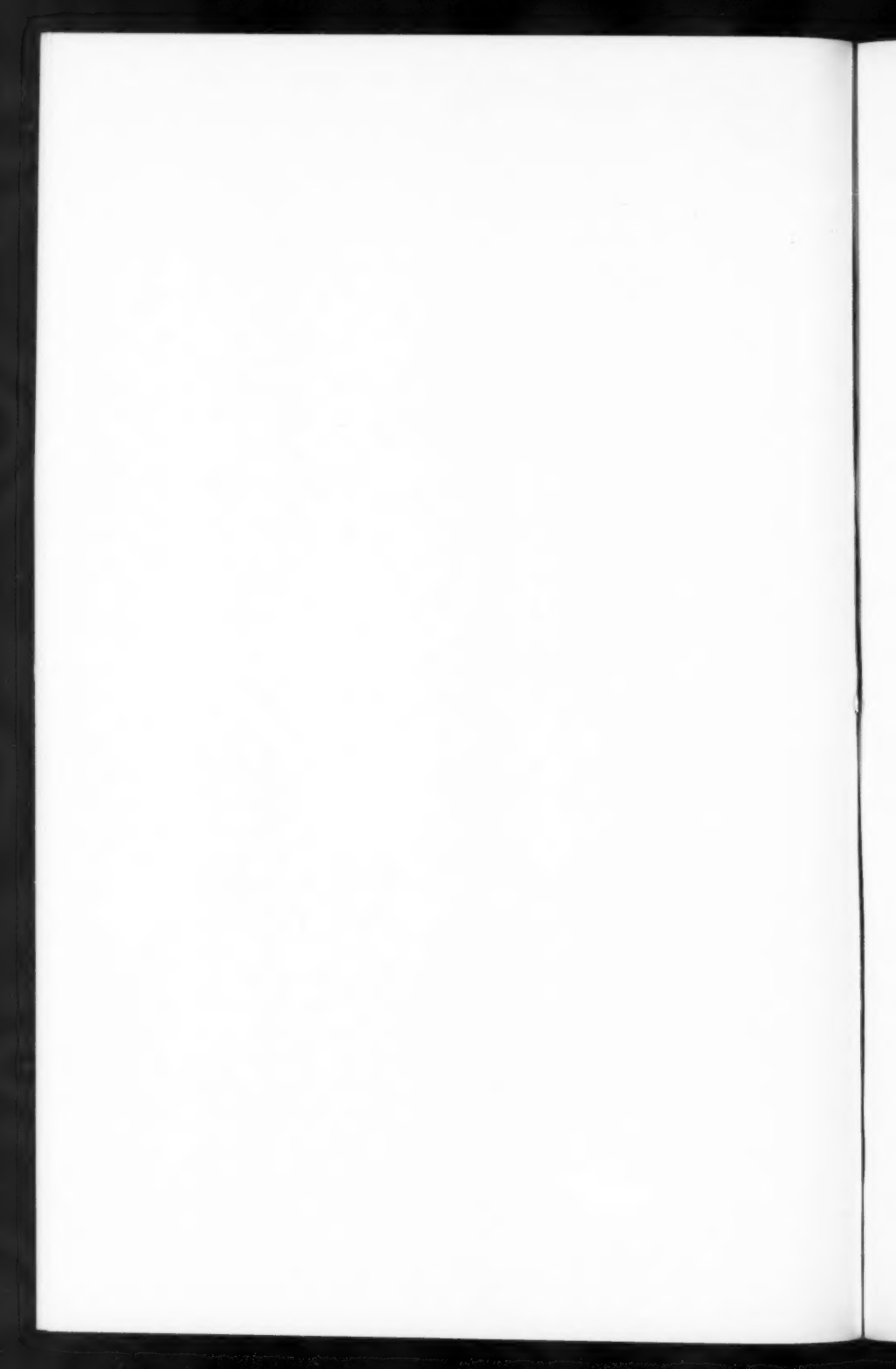




From the W. W. Stewart Collection.
N. Z. G. R. class "Q" #339. Baldwin 1901. 16x22". 49". 107500#.



Photo: T. A. McGavin.
N. Z. G. R. class "A" 4-cylinder compound #606. Price Bros., Thames, N. Z., 1914.
12 and 19x22". 54". 114200#.



class was first introduced, and, further, that the working pressures quoted for the engines built prior to 1889 have not yet been definitely established.

Yr. Ist Built	Type	Class	Engine Wt.(tons)	Cylinders	Coupled Wheel Dia.	Working Pressure
"Fairlie" Articulated locomotives						
1875	0-4-4-0T	E	37.0	(4)	10x18"	130#
1878	0-6-4T	R	33.0	(2)	12¼x16"	130#
1880	0-6-4T	S	37.2	(2)	13x16"	130#
Small Tank Locomotives						
1872	0-6-0T	F	19.2	(2)	10½x18"	130#
1873	0-4-0T	A	11.0	(2)	8x15"	100#
1873	0-4-2T *	C	15.7	(2)	9½x18"	120#
1873	4-4-0T	G	20.5	(2)	10½x18"	130#
1874	2-4-0T	D	14.7	(2)	9½x18"	120#
1875	0-6-0T	M	27.7	(2)	13x20"	130#
1877	2-4-0T	L	18.5	(2)	10½x18"	130#
1897	0-6-2T	Fb	28.7	(2)	12x18"	160#
1899	4-4-2T	L	31.5	(2)	12x18"	160#
Larger Tank Locomotives						
1889	2-6-2T	W	37.2	(2)	14x20"	170#
1892	2-6-2T	Wa	37.2	(2)	14x20"	170#
1901	2-6-4T	Wd	43.7	(2)	14x20"	200#
1902	2-6-4T	We	58.0	(2)	16x22"	200#
1904	2-6-4T	Wf	43.7	(2)	14x22"	200#
1910	4-6-4T	Wg	50.5	(2)	14x22"	200#
1913	4-6-4T †	Ww	51.5	(2)	15½x22"	180#
1917	4-6-4T †	Wab	71.5	(2)	17x26"	200#
Tender Locomotives for Goods Traffic						
1879	2-8-0	T	28.2	(2)	15x18"	130#
1885	2-8-0	P	32.5	(2)	15x20"	130#
1885	2-8-0	O	29.2	(2)	15x18"	130#
1899	4-8-0	B	42.0	(2)	16x22"	175#
1908	4-8-2	X	66.7	(2hp) 13½x22"	3' 9"	230#
				(2lp) 22x22"		
1911	4-8-0 †	Ba	43.9	(2)	16x22"	175#
1915	4-8-0 †	Bb	43.5	(2)	17x22"	175#
Tender Locomotives for Mixed (Dual Purpose) Traffic						
1874	2-6-0	J	21.0	(2)	14x20"	130#
1877	2-4-2	K	23.2	(2)	12x20"	130#
1885	2-6-2	V	32.0	(2)	15x20"	135#
1885	2-6-2	N	29.2	(2)	15x20"	135#
1894	4-6-0	U	38.0	(2)	16x20"	160#
1898	4-6-0	Ub	35.7	(2)	16x20"	175#
1901	4-6-0	Uc	38.1	(2)	16x22"	200#
1901	4-6-2	Q	48.0	(2)	16x22"	200#
1906	4-6-2	A	51.0	(2hp) 12x22"	4' 6"	225#
				(2lp) 19x22"		
1914	4-6-2 †	Aa	50.7	(2)	18x24"	170#
1915	4-6-2 †	Ab	51.3	(2)	17x26"	180#
1932	4-8-4 †	K	84.8	(2)	20x26"	200#
1937	4-6-2 †	G	61.1	(3)	16½x24"	200#
1939	4-8-2 †	J	68.6	(2)	18x26"	200#

* Originally built as 0-4-0T, but later rebuilt as 0-4-2T. Earliest diagram we have seen shows the engine in its rebuilt form.

† Engine superheated.

The American reader should keep in mind these tons are English not American tons.

TYPES AND CLASSES OF STEAM LOCOMOTIVES BUILT FOR THE NEW ZEALAND GOVERNMENT RAILWAYS AND CONSTITUENT COMPANIES FROM 1872 TO 1949

The following list gives in chronological order of their introduction the total number of each class of 3' 6" gauge steam locomotives built for the New Zealand Government Railways or constituent companies by various manufacturers from 1872 to 1949 inclusive, together with an indication of the number of engines of each class still in service and the periods during which engines of each class, no longer in stock, were withdrawn.

A key to the abbreviations used in giving the names of the builders will follow.

Altered or rebuilt locomotives are included in this list when such alteration has affected wheel arrangement or classification symbol, but not otherwise. In the column headed "Number Built," figures in brackets distinguish rebuilt engines which have been accounted for in their original state elsewhere in the list.

The dates of withdrawal indicate merely the dates of withdrawal from N. Z. R. stock and do not necessarily indicate that the engines concerned were scrapped at that time. Engines sold or withdrawn from that particular list for rebuilding are also included. Many of the older locomotives have been sold to private companies and several are still at work in industrial service.

Explanatory notes are given wherever it seems to be necessary or desirable to amplify the information given.

Class	Date Built	Number Built	Builder	Number in Service Dec. 1949	Withdrawn
0-4-4-0T Double Fairlie Type					
E	1872	2	Vulcan	—	(1) pre 1890
	(ex Dunedin & Port Chalmers Railway)	6	Avonside	—	(7) 1898-99
0-6-0T Type					
F	1872-73	4	Neilson	1	(3) 1927-32
	1873	1	Bl. Hthn	—	1931
and	1873	3	Stephenson	—	1930
	1874	11	Yorkshire	4	(7) 1923-35
O	1875	3	Vulcan	—	1929-30
	1875-76	26	Avonside	6	(20) 1919-43
	1878	6	Neilson	2	(4) 1929-32
	1878-80	17	Dubs	3	(14) 1929-43
	1884	4	Dubs	—	1931-44
	1885-86	9	Stephenson	4	(5) 1930-36
	1887	2	Vulcan	—	1927-37
	1888	1	Neilson	—	1922
(37 of these engines originally classified "O" were altered to "F" between 1881 and 1884.)					
0-4-0T Type					
A	1873	12	Dubs	—	1886-06
	1875	2	Yorkshire	—	1891-05
	1875-76	3	Mills	—	pre 1890
	1872	1	Barclay	—	pre 1890

(The last locomotive was taken over from the Oamaru Harbour Board about 1876).

Class	Date Built	Number Built	Builder	Number in Service Dec. 1949	Withdrawn
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0-4-2T Type

C	1873	10	Neilson	—	All by 1922
	1875	6	Dubs	—	

(Originally built as 0-4-0 tank engines, but a trailing truck was added to most in the late seventies or early eighties.)

4-4-0T Type

G	1873-74	4	Bl. Hthn	—	1915-19
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0-4-4-0T Double Fairlie Type

B	1874	2	Avonside	—	1890-96
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2-4-0T Type

D	1874	7	Neilson	—	1914-19
	1878	4	Neilson	—	1899-20
	1878	5	Dubs	—	1900-25
	1880	6	Neilson	—	1911-18
	1887	10	Scott	—	1901-27
	1890	1	Scott	—	1901

(The last locomotive came from the N. Z. Midland Ry.)

2-6-0 Type

J	1874	6	Avonside	—	1927-35
	1879	5	Neilson	—	1932-35
	1879	5	Stephenson	—	1932-35
	1879	4	Dubs	—	1931-33
	1883	12	Vulcan	—	1928-35

0-4-2 (Fell) Type

H	1875	4	Avonside	4	—
	1886	2	Neilson	2	

0-6-0T Type

M	1875	4	Hunslet	—	1925-28
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(Converted to 2-4-4T about 1890).

0-4-0T Type

S	1875	1	Hughes	—	1886
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0-6-0T Type

P	1876	2	Davidson	—	1882-85
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2-4-0T Type

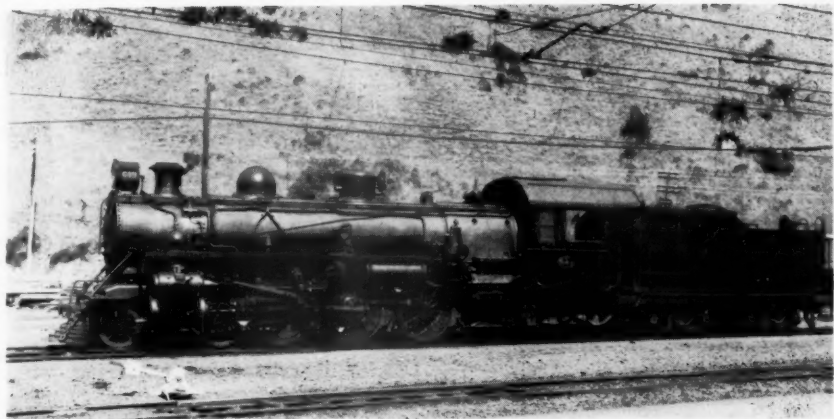
L	1877	10	Avonside	—	1893-03
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(Rebuilt as class "La" 4-4-0T (3) 1893-7 or class "L" 4-4-2T (4) 1899-1900; remaining three sold).

2-4-2 Type

K	1877-78	8	Rogers	—	1922-28
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Class	Date Built	Number Built	Builder	Number in Service Dec. 1949	Withdrawn
2-4-4T Type					
Q	1878	2	Rogers	—	1896-00
(Ex Rakaia and Ashburton Forks Railway).					
0-6-4T (Single Fairlie) Type					
R	1878-79	18	Avonside	—	1917-34
2-8-0 Type					
T	1879	6	Baldwin	—	1922-28
0-6-4T (Single Fairlie) Type					
S	1880-81	7	Avonside	—	(3) 1891 (4) 1922-27
2-6-2T Type					
Wh	1884	3	Mng Wardle	—	1914-27
(Ex Wellington and Manawatu Ry. in 1908; two others were sold by the company before 1908).					
2-6-2 Type					
V	1885	13	Nsmth Wlson	—	1923-28
(Three ex Wellington and Manawatu Ry. in 1908).					
2-6-2 Type					
N	1885	6	Baldwin	—	1927-34
	1891	2	Baldwin	—	1926-28
	1901	4	Baldwin	—	1926-29
(The two 1891 engines were built for the Wellington and Manawatu Railway and were taken over by the N. Z. R. in 1908).					
2-8-0 Type					
P	1885	10	Nsmth Wlson	—	1922-30
2-8-0 Type					
O	1885	6	Baldwin	—	1922
4-4-0T Type					
La	1887	5	Nsmth Wlson	—	1920-28
(Ex New Zealand Midland Railway in 1900).					
2-8-0 Type					
Ob	1889	2	Baldwin	—	1929-31
(Ex Wellington and Manawatu Railway in 1908).					
2-6-2T Type					
W	1889-91	2	N. Z. G. R.	2	—



Railways Publicity Photo.

N. Z. G. R. class "Aa" #649. Baldwin 1914 (shown as rebuilt Hutt Shops about 1940).
18x24". 49". 120000#.

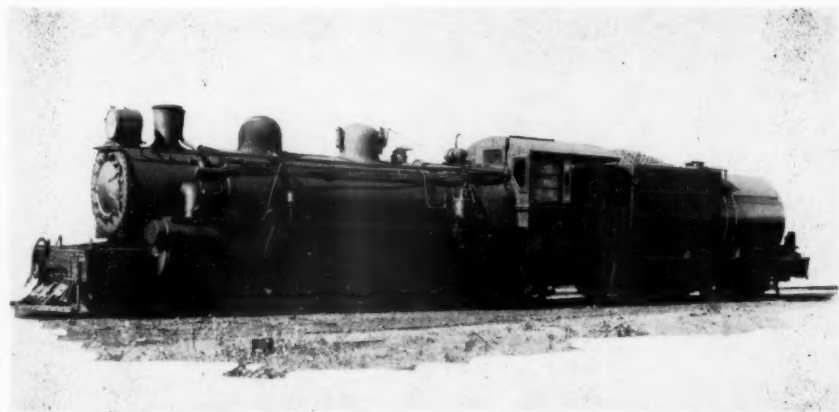


Photo: N. Z. R. Publicity.

N. Z. G. R. class "Ab" #735. North British Locomotive Company, Glasgow, Scotland, 1921.
17x26". 54". 115000#.





Photo: W. W. Stewart.
N. Z. G. R. class "K" #300. Hutt Workshops 1932. 20x26". 54". 190000#.



Railways Publicity Photo.
N. Z. G. R. class "Ka" #959. Hutt Shops 1950. 20x26". 54". 206300#.



Photo: W. W. Stewart.

N. Z. G. R. class "J" #1233. North British Locomotive Co., Glasgow, Scotland, 1939.
18x26". 54". 154000#.



Photo: W. W. Stewart.

N. Z. G. R. class "X" #443. Addington Workshops 1909 (altered from 4-cyl. compound to 4-cyl. simple, Hutt Workshops, 1947). (4) 13 $\frac{1}{2}$ x22". 45". 149000#.

C

V

F

L

U

N

C
C

F

U

V

U

Class	Date Built	Number Built	Builder	Number in Service Dec. 1949	Withdrawn
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2-6-2T Type

Wa	1892-03	11	N. Z. G. R.	5	(6) 1928-46
	1917-18	(4)	N. Z. G. R.	—	1931-33

(The 1917-18 engines were rebuilt from Class "J" 2-6-0s).

0-6-0T Type

Fa	1892-95	(12)	N. Z. G. R.	—	1900-04
	1896	1	N. Z. G. R.	—	1904

(The first twelve of this class were rebuilt from class "F," 0-6-0T engines. All were subsequently rebuilt as class "Fb," 0-6-2T; see later reference.)

4-4-0T Type

La	1893-97	(3)	N. Z. G. R.	—	1900-02
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(Rebuilt from Class "L" 2-4-0T. Subsequently altered to class "L" 4-4-2T—1900-02).

4-6-0 Type

U	1894-03	9	N. Z. G. R.	9	—
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2-6-2 Type

Na	1896-97	2	Baldwin	—	1928-29
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(Ex Wellington and Manawatu Ry. in 1908—Vauclain compound).

2-8-0 Type

Oa	1894	1	Baldwin	—	1929
Oc	1896	1	Baldwin	—	1930

(Ex Wellington and Manawatu Ry. in 1908—Vauclain compound).

0-6-2T Type

Fb	1897-04	(14)	N. Z. G. R.	—	1919-43
	1902-03	6	N. Z. G. R.	—	1931-36

(Fourteen engines were rebuilt from class "Fa" or "F" 0-6-0T's; all were reclassified "Fa" in 1905).

4-6-0 Type

Ub	1898	10	Baldwin	—	1933-36
	1901	10	Baldwin	7	(3) 1935
	1901	1	Brooks	—	1933
	1901	1	A. L. Co.	—	1933

2-6-2T Type

Wb	1898	12	Baldwin	4	(8) 1927-35
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4-6-0 Type

Ua	1899	6	Shp. Stewart	—	1933-36
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Class	Date Built	Number Built	Builder	Number in Service Dec. 1949	Withdrawn
4-8-0 Type					
B	1899	4	Shp. Stewart	1	(3) 1902-43
	1899-03	6	N. Z. G. R.	6	—
(Two of the 1899 engines were rebuilt as class "We" 4-6-4 tank in 1902 and another in 1943).					
4-4-2T Type					
L	1899-00	(7)	N. Z. G. R.	—	1922-32
	1903	3	N. Z. G. R.	—	1922-39
(The first seven engines rebuilt from Class "L" 2-4-0T (4) and from class "La" 4-4-0T (3)).					
2-6-4T Type					
Wd	1901	18	Baldwin	—	1932-35
4-6-0 Type					
Uc	1901	10	Shp. Stewart	7	(3) 1934-36
4-6-2 Type					
Q	1901	13	Baldwin	4	(9) 1940-48
2-6-2 Type					
Nc	1901	1	Baldwin	—	1934
	1904	1	Baldwin	—	1928
(Both ex Wellington and Manawatu Ry. in 1908—Vauclain compounds).					
2-8-2 Type					
Bc	1901	1	Baldwin	—	1926
(Ex Wellington and Manawatu Ry. in 1908—Vauclain compound).					
4-6-4T Type					
We	1902-43	(3)	N. Z. G. R.	3	—
(Rebuilt from class "B" 4-8-0s).					
4-6-0 Type					
Ud	1904	2	Baldwin	—	1928-31
(Ex Wellington and Manawatu Ry. in 1908).					
2-8-4T Type					
Wj	1904	1	Baldwin	—	1927
(Ex Wellington and Manawatu Ry. in 1908).					
2-6-4T Type					
Wf	1904-09	26	N. Z. G. R.	19)	(8) 1939-43
	1904-06	12	Price	11)	
	1928	3	Price	3	
(Two of these engines built in 1904 by Price Bros. were to the order of the Public Works Department; they were taken over about 1909 by the N. Z. G. R.).					

Class	Date Built	Number Built	Builder	Number in Service Dec. 1949	Withdrawn
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2-6-6-0T (Modified Mallet Compound)

E	1905	1	N. Z. G. R.	—	1917
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4-6-2 Type—Balanced Compound

A	1906-08	8	N. Z. G. R.	8	—
	1907	20	Price	20	—
	1910-14	30	Price	30	—

(The last thirty engines were at first classified "Ad" but were reclassified "A" after 1915. Fifty-seven have been altered to simple engines 1941-1949).

4-8-2 Type—Balanced Compound

X	1908-09	8	N. Z. G. R.	5	(3) 1943-49
	1914-15	10	N. Z. G. R.	9	(1) 1949

(These engines are being altered to simple).

4-6-4T Type

Wg	1910-12	20	N. Z. G. R.	10	(10) 1940-42
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(Ten engines altered to class "Ww").

4-8-0 Type

Ba	1911-13	10	N. Z. G. R.	10	—
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4-6-4T Type

Ww	1913-19	50	N. Z. G. R.	50	—
	1940-42	(10)	N. Z. G. R.	10	—

(Ten engines altered from class "Wg").

4-6-2 Type

Aa	1914	10	Baldwin	10	—
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4-8-0 Type

Bb	1915-18	30	Price	30	—
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4-6-2 Type

Ab	1915-17	18	N. Z. G. R.	18	—
	1921-22	10	N. Z. G. R.	10	—
	1921-23	48	Nth. British	48	—
	1922-25	20	Price	20	—
	1925	35	Nth. British	35	—
	1925-26	10	N. Z. G. R.	10	—
	1947-48	(8)	N. Z. G. R.	8	—

(Eight engines rebuilt from class "Wab" 4-6-4T, 1947-48).

4-6-4T Type

Ws	1917	1	N. Z. G. R.	1	—
(Wab)	1923	8	N. Z. G. R.	8	—
	1926-27	5	Price	5	—

(All reclassified "Wab" between 1932 and 1935).

Class	Date Built	Number Built	Builder	Number in Service Dec. 1949	Withdrawn
4-6-4T Type					
Wab	1918	1	N. Z. G. R.	1	—
	1923	2	N. Z. G. R.	2	—
	1925-27	10	N. Z. G. R.	2	(8) 1947-48
	1926	3	Price	3	—

(Eight engines rebuilt as class "Ab" 4-6-2, 1947-48).

4-6-2 plus 2-6-4 (Beyer Garratt) Type

G	1928	3	Byr. Peacock	—	1935
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(Rebuilt as six class "G" 4-6-2 locomotives in 1937-38).

2-6-2 Type

C	1930-31	24	N. Z. G. R.	24	—
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0-4-0T Type

D	1929	1	Clayton	—	1935
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4-8-4 Type

K	1932-36	30	N. Z. G. R.	30	—
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4-6-2 Type

G	1937-38	6	N. Z. G. R.	6	—
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(Rebuilt from three class "G" Garratt locomotives).

4-8-4 Type

Ka	1939-47	33	N. Z. G. R.	33	—
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4-8-4 Type

Kb	1939	6	N. Z. G. R.	6	—
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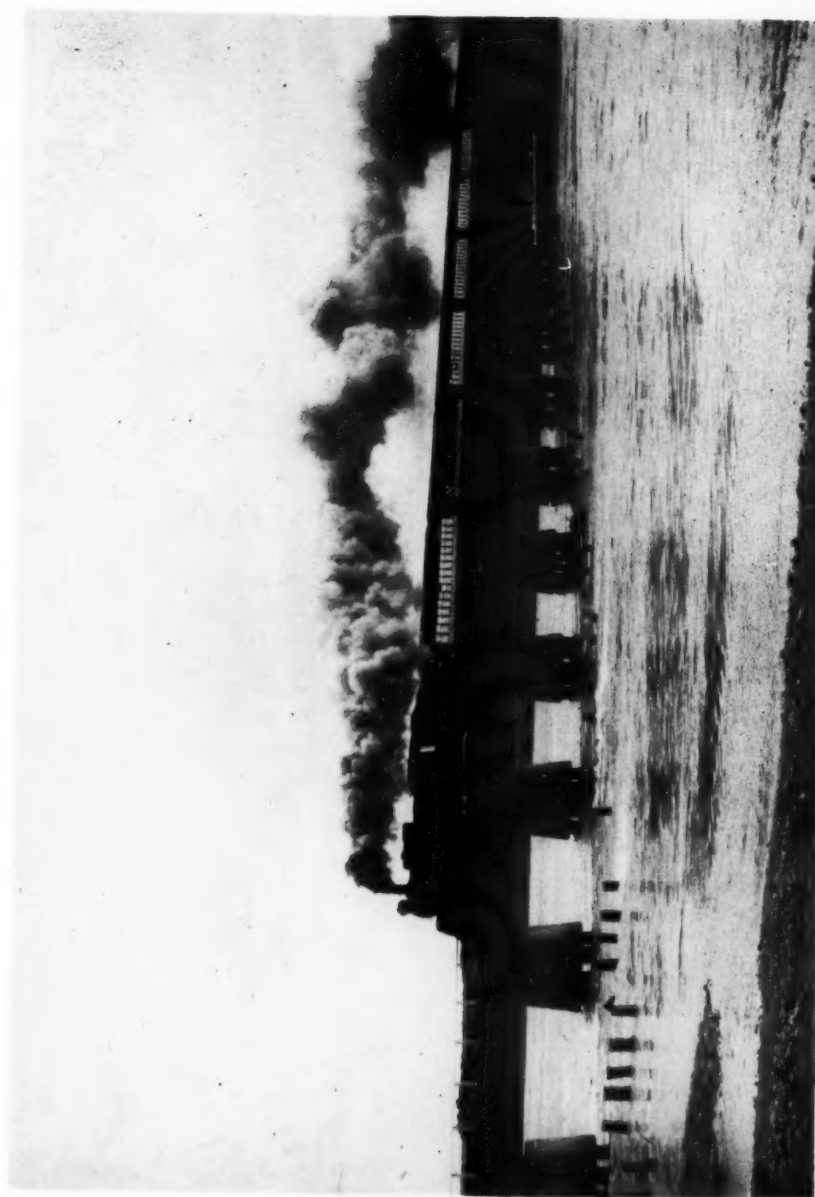
4-8-2 Type

J	1939	40	Nth. British	40	—
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4-8-2 Type

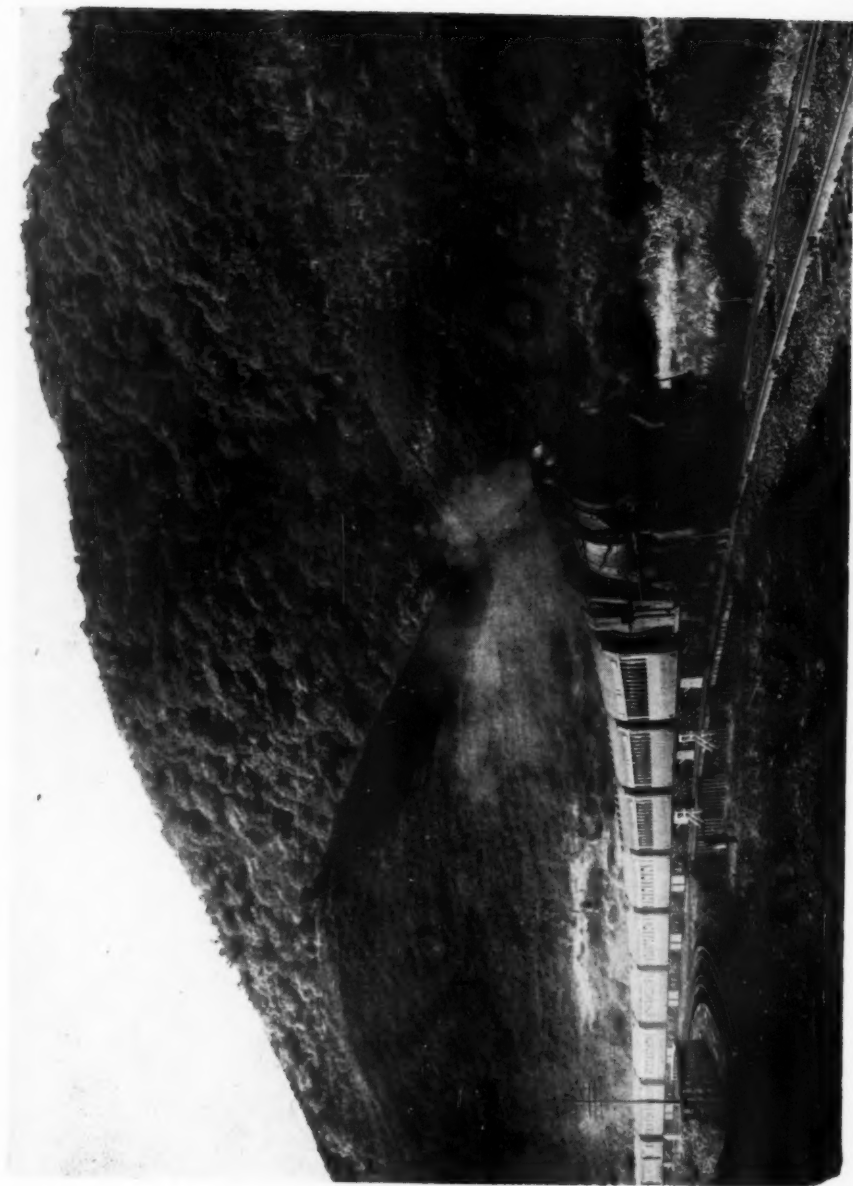
Ja	1946-49	15	N. Z. G. R.	15	—
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A. L. Co.	American Locomotive Co., Richmond, Va. Works, U. S. A.
Avonside	Avonside Engine Co., Bristol, England
Baldwin	.....	Baldwin Locomotive Works, Philadelphia, Pa., U. S. A.
Barclay	.....	Andrew Barclay & Sons, Kilmarnock, Scotland
Bl. Hthn	.....	Black, Hawthorn & Co., Gateshead-on-Tyne, England
Brooks	.....	Brooks Locomotive Works, Dunkirk, N. Y., U. S. A.
Byr Peacock	.....	Beyer Peacock & Co. Ltd., Gorton, Manchester, England
Clayton	.....	Clayton Wagons Ltd., Lincoln, England
Davidson	.....	James Davidson & Co., Otago Foundry, Dunedin, N. Z.
Dubs	.....	Dubs & Co., Glasgow, Scotland
Hunslet	.....	Hunslet Engine Co., Leeds, England
Hughes	.....	Henry Hughes & Co., Loughborough, England
Mills	.....	E. W. Mills, Wellington, N. Z.
Mng Wardle	.....	Manning, Wardle & Co., Leeds, England
Neilson	.....	Neilson & Co., Glasgow, Scotland



Southbound SOUTH ISLAND LIMITED crossing Rehola River, 38 miles from Christchurch on way to
Dunedin and Timaruville.

Hailways Publicity Photo.



N. Z. G. R. Auckland-Wellington passenger train passing Taupiri, 70 miles south of Auckland.
Class "J" 4-8-2 locomotive #1233 (oil fired). (1949).

Railways Publicity Photo.

N. Z. G. R. Auckland-Wellington passenger train passing Taupiri, 70 miles south of Auckland.
Class "J" 4-6-2 locomotive #1233 (all fired). (1949).



Tidal Wallington-A-ckland DAYLIGHT LIMITED crossing Mangaweka Viaduct, October 1949, Class "K" 4-8-4 locomotive #924. "All out" on a 1.7 per cent. grade.

Railways Publicity Photo.

Trial Wellington-Auckland DAYLIGHT LIMITED crossing Manawake Viaduct, October 1949. Class "K" 4-8-4 locomotive #224. "All out" on a 3.7 per cent grade.



Railways Publicity Photo.



N. Z. G. R. class "K" #920 lifting heavy freight into Baurimu on climb to National Park (2,647 feet).
Photo taken in 1940.

Railways Publicity Photo.

Nsmth Wlsn	Nasmyth Wilson & Co. Ltd., Manchester, England
Nth. British	North British Locomotive Co., Glasgow, Scotland
N. Z. G. R.	New Zealand Government Railways
Price	A & G Price Ltd., Thames, N. Z.
Rogers	Rogers Locomotive Works, Paterson, N. J., U. S. A.
Scott	Scott Bros., Christchurch, N. Z.
Shp. Stewart	Sharp, Stewart & Co., Glasgow, Scotland
Stephenson	Stephenson & Co., Newcastle-on-Tyne, England
Vulcan	Vulcan Foundry Ltd., Newton-le-Willows, Lancs., England
Yorkshire	Yorkshire Engine Co., Sheffield, England

The New Zealand Government Railways received the following locomotives, built new, during the periods indicated:

1872-1878 incl.	174 locomotives
1879-1888 incl.	132 locomotives
1889-1898 incl.	46 locomotives
1899-1908 incl.	162 locomotives
1909-1918 incl.	185 locomotives
1919-1928 incl.	161 locomotives
1929-1938 incl.	61 locomotives
1939-1949 incl.	94 locomotives
Total	1015 locomotives

In the case of engines rebuilt or modernized, the age given here is taken from date of original construction. This also applies to the following table.

On December 31, 1949, the rolling stock consisted of 624 locomotives, grouped as follows according to their ages:

18	2.9	Over 70 years old
8	1.3	61-70 years old
14	2.2	51-60 years old
93	14.9	41-50 years old
179	28.7	31-40 years old
158	25.3	21-30 years old
60	9.6	11-20 years old
94	15.1	0-10 years old

In presenting this paper to our members, your Editor wishes to express his appreciation to Mr. T. A. McGavin, President of The New Zealand Railway & Locomotive Society, and their members, for permission to include this material in our publication.

There are several reasons for the reproduction of this paper. The New Zealand Railway & Locomotive Society was formed a few years ago on lines similar to ours. Compared to this Society they are a small group but they have succeeded in attracting to their membership members, not only in their own country but overseas as well. Their mimeographed "Observer" contains well written and interesting articles on their own railways and what it lacks in illustrations is made up in good descriptive material. Details concerning membership, together with the dues may be obtained from Mr. McGavin and he should be addressed at 30 Plunket Ave., Petone, New Zealand. American members are cordially welcome.

In the opinion of your Editor, the above account is one of the most complete as well as concise of any that he has ever seen on this subject. The illustrations have been selected with care in order to show the different types of motive power as well as rolling stock. For this reason permission was asked to reproduce this article and the reprints, which will be turned over to the New Zealand group will be of assistance to them. In this way we can help them to obtain a better foothold.

While your Editor realizes that the majority of our members are not especially concerned with railroads other than those in the U. S. A., he is perhaps, bluntly, making these statements for your consideration. The New Zealand Government Railways are narrow gauge, 3' 6" to be exact and some of our narrow gauge minded members that are bemoaning the fact that this gauge is about to disappear in this country and "the last train is about to be run" might well get out of their rut and realize, as stated by Major Branstons in Bulletin No. 80, that there is plenty of it left in the world.

To the locomotive "fan," your attention is directed to the many types of locomotives and the date of their first introduction. Here was used the first Pacific; here are more "Northern" type, 4-8-4 than on the New York Central—in fact no narrow gauge railroad that I know of in the U. S. A. has ever presented such a wealth and variety of motive power, nor such extensive rebuilding. Some of them could easily pass for American locomotives, in fact many were built in this country. Looking into the future, do some of our members realize that very shortly there will come to this country a generation that will never see a steam locomotive, if the present trend continues? The day is almost past now when a photograph of a steam locomotive can be labelled—fresh from the builder. This phase may have to be dropped or else we may have to look elsewhere.

I think it can be safely stated that there are more people outside of the U. S. A. interested in American railroads than there are inside the U. S. A. interested in the railroads of foreign lands. Yet here we are, attempting to sell to these countries, our democratic form of life and government to combat communism, yet some of us do nothing to foster and encourage such an interest. The majority of those in other lands that seek this information can write good English and some are even better informed about our railroads, as a whole, than many of us.

To some of our members, this article with these remarks may not be entirely welcome. On the other hand, I know of no better article summarizing as it does the history of the locomotives on this narrow gauge railway and, it also seems to me, that the members of the New Zealand Railway and Locomotive Society deserve a good pat on their backs for their efforts and that it won't do any of us, as Americans, any harm, in fact it might broaden our knowledge and interests, to learn a bit about what the other fellow "down under" rides behind when he makes a trip by train or talks about at his meetings.

Northern Cross Railroad

By A. W. NEWTON

By an Act of the Illinois Legislature entitled "Internal Improvement Act of 1837" passed February 7, 1837, and made effective February 27, 1837, the construction of a system of railroads was authorized, consisting of a main trunk line extending from Cairo, Illinois, through the middle of the State to Galena, Illinois. In the Act this line was called the Central Railroad.

In addition to this main trunk line, cross lines were authorized at various points, as well as certain spur lines from these cross lines. To these lines no names were given, except two which were

The Southern Cross Line,

extending from Mt. Carmel on the Illinois-Indiana state line, westward to Alton, on the Mississippi River, and

The Northern Cross Line,

extending from the Illinois-Indiana State line westward to Quincy on the Mississippi River.

The map accompanying this memorandum shows the routes of all these proposed lines. On the map is also shown the area of the State that had been surveyed by the Government up to 1818, the date of Illinois statehood. There is also shown the Military Tract, set apart by the Government in 1812 for "bounties" of 160 acres of land as promised to soldiers serving in that War. (Above information taken from Ridgely's *Geography of Illinois* (1921)).

It is from this Central Military Tract that the line of the C. B. & Q. R. R. between Galesburg and Mendota obtained the name under which it was built, and through which "tract" most of the line was constructed.

With this introductory statement concerning the Internal Improvement Act we now pass to the history of the Northern Cross Railroad under which the line was constructed from Quincy to Galesburg, and which was authorized by an act of the Legislature to be "a lateral spur" from the main line of the Northern Cross Railroad "at a point near Quincy to a connection with the proposed Central Military Tract Railroad at Galesbug."

The many vicissitudes through which this road passed, before the C. B. & Q. R. R. became interested in it, are a matter of record contained in Record Book No. 195 in the Burlington archives.

The question is often asked as to the source of the name "Northern Cross Railroad." In the Act there is no capitalization of letters in the wording of the Act, which would be the case had it been named for persons, towns or localities or some physical phenomenon. It, therefore, seems reasonable to assume that the framers of the Act, feeling that this

line, together with the southern cross railroad were to be the most important east and west lines acting as feeders to the Central Railroad, and simply called them *cross railroads*, which, in fact, they were.

By an act of the Illinois Legislature, approved February 1, 1851, called "Supplement" to a former act of February 10, 1849, the Northern Cross Railroad was "authorized to locate a *lateral branch*" of said Northern Cross Railroad "commencing at a convenient point on said road in Adams County and running thence through the Military Bounty Tract."

June 21, 1852, this "Supplement" was modified to permit of its adaptation to the general plan of a railroad from Chicago to Burlington and Quincy, then being promoted by John M. Forbes and his associates.

Prior to this date (1852) at a meeting of the Board of Directors, November 21, 1851, it was

"Resolved: That it is expedient to survey and locate that part of the Northern branch (lateral branch) road of the company, from its junction with the Trunk Road in Adams County to some advisable point in 'Knox County.'"

Up to this time the Company had no official seal.

At a board meeting May 4, 1852, this seal was provided. It is described as with a device of a plough and surrounded on the margin with the words "*Northern Cross Rail Road Company, Illinois.*"

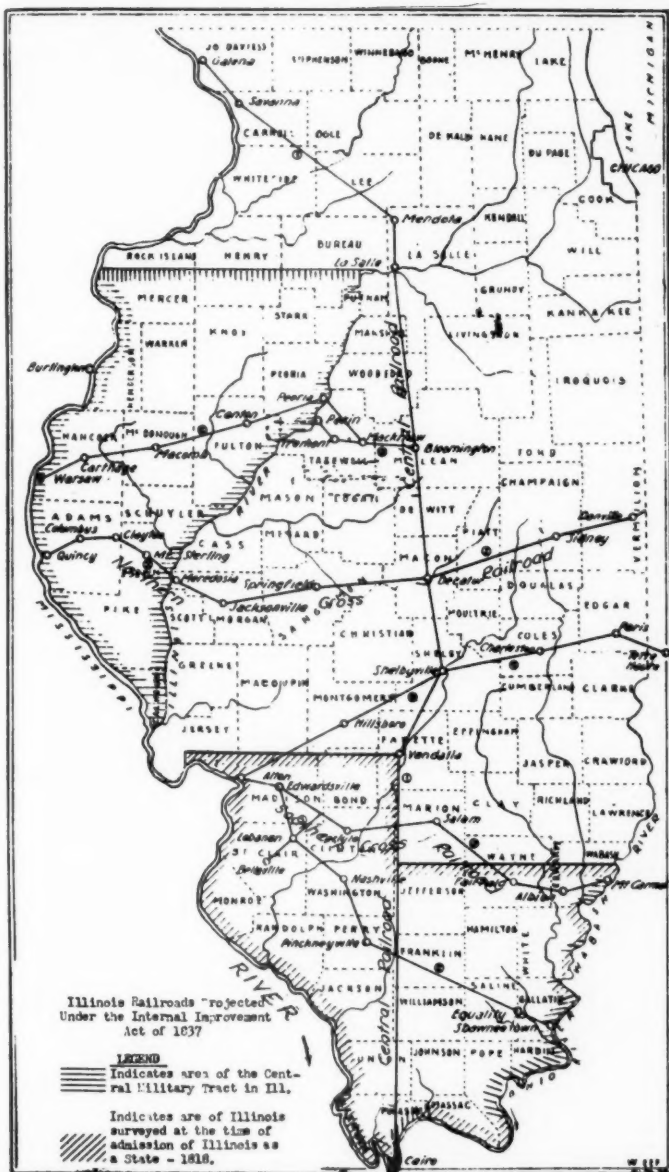
July 21, 1852, at a meeting of the Board consisting of Lorenzo Bull, Nemahia Bushnell, James M. Pitman, James D. Morgan and Hiram Rogers, it was

"Resolved, That the Northern Cross Rail Road Company will consent to make a connection of their Northern Branch Road (lateral Branch, as called in Supplemental Act of February 1, 1851) with the Central Military Tract Road at Galesburg, on such terms as will secure the building of said Branch and (the) Military Tract Road (projected, but not yet building) connecting with any other road leading to Chicago, and that this Company will make satisfactory relinquishment of its right to extend its North Branch north of Galesburg, or to make any other connection with any other road leading to Chicago."

A provision was made for this offer to remain open for 30 days.

It was about this time that Mr. Forbes and his associates, through the officers of the Central Military Tract Railroad, became interested in the Northern Cross Railroad, with a view to extending his Chicago to Burlington line, from Galesburg to Quincy. In May, 1852, Mr. Colton and Mr. Bunce, directors of this road, went to Quincy to negotiate a contract with this road for a "connection at Galesburg."

Mr. James F. Joy had been in Springfield, Illinois, to urge the passage of certain legislation amending charters of the three railroads, Chicago and Aurora, the Central Military Tract, and the Peoria and Oquawka Railroad, so that they might later be merged into Mr. Forbes' scheme of railroads between Chicago and the Mississippi River. At the



Illinois Railroads Projected under the Internal Improvement Act of 1837.

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same time, and doubtless under the guidance of Mr. Joy, the charter of the Northern Cross Railroad was also amended so as to permit that road to connect with the Central Military Tract Railroad at Galesburg.

These legislative amendments were all passed between the dates of June 19 and June 22, 1852.

November 11, 1852, at a board meeting it was

“Resolved that N. T. Bushnell, Esq. the president of the Company is hereby authorized and empowered to enter into negotiations and to conclude with the Michigan Central, Aurora Branch, or Central Military Tract Railroad Companies, or all or either of them, any contract or agreement which may, to him, seem proper for connecting the Northern Cross Branch of the Northern Cross Railroad, with the Central Military Tract Rail Road at Galesburg . . .”

February 19, 1852, at the Stockholders Meeting, this date, John W. Brooks and James F. Joy were elected directors.

At this time Mr. Brooks was president of the Central Military Tract Railroad, and Mr. Joy was president of the Chicago and Aurora Railroad.

From Mr. Forbes was to come financial aid not only for completion of the Northern Cross Railroad from Quincy to Clayton, but also the Lateral Branch of that road, extending northward to Galesburg.

April 19, 1853 at a board meeting action was taken

“for aiding in construction of line from Quincy to Clayton—\$200,000 in bonds were to be issued, dated January 1, 1853 and payable to John M. Forbes and Elliot Thayer, Trustees, under Deed of Trust or Mortgage, covering line “Quincy to Clayton (27 miles).”

The President was also

“authorized to contract for Iron (rail), Chairs, Spikes, Engines and Rolling Stock to complete line from Quincy to Clayton and the lateral branch to Galesburg.”

June 27, 1853—at a board meeting, “Mr. Louis Ferdinand Van Hoffman was made third trustee under Mortgage.”

Proceeds from sale of bonds to be used exclusively to construct and equip road from “Quincy to Galesburg, on a line passing through Clayton, in Adams County.” (The line as eventually built did not pass through Clayton, but left the Northern Cross Line at Camp Point a few miles west of Clayton).

On this same date, June 27, 1853 the road

“contracted with John M. Forbes for the delivery of twenty-five hundred tons of Iron (rails) of the T-pattern of Sixty pounds per lineal yard.”

According to the records, these contracts for various construction items were placed with Corning and Co. of Albany, N. Y. and amounted to about \$75,000. At the same time, arrangements were made with Corning and Co. to furnish as many locomotives as the Company may

need, from the Buffalo and Albany Road, selection to be made from "a large number which, during the summer, will be found for Sale."

At this board meeting it was "Agreed that the road would be built through Macomb, McDonough County, on basis of a contribution of \$75,000."

August 1, 1853—At a board meeting the President (Bushnell) reported that he had been advised that "Mr. Forbes had contracted for 2,500 tons of Iron (rail) to be delivered in New Orleans in January and August, 1854, at \$57.00 per ton."

Also, that a contract for 7,500 tons had been entered into with Forbes and Corning for rail of similar pattern, at \$70.00 per ton. 5,500 tons to be delivered in New Orleans; 2,000 tons in March, 2,000 tons in May, 1854. The balance, 2,000 tons, to be delivered in New York on or before May 1, 1854.

From the foregoing statements it is evident that the large investments being made or being guaranteed by Mr. Forbes and his associates portended eventual control and possible ownership.

A mortgage or Deed of Trust was authorized to secure bonds to be issued. The proceeds from sale of Bonds were to be applied exclusively to the completion and equipment of line Quincy to Galesburg. The bonds together with 1,500 shares of the Capital Stock of the Company were sold to Messrs. J. E. Thayer & Brother and Delancy, Iselin and Clark—associates of Mr. Forbes.

A new seal for the Company was authorized "in the center of which is the device of a locomotive and surrounded near the edge with the words *Northern Cross Railroad Co.*"

October 3, 1853, the Company advertised for bids on construction of line Quincy to Galesburg. At the same time the Engineer, Mr. Newell, reported that two second hand freight engines had been purchased from the Albany and Buffalo Railroad, and that through Erastus Corning and Co. arrangements had been effected with the Schenectady Works for five new engines—three for passenger and two for freight service.

November 11, 1853, the Board

"Resolved, that the Company will eventually located (relocate) the Road from Quincy as recently surveyed through the Whipple Valley to its intersection with the old line."

The change was made and the Burlington now operates into Quincy and beyond, via this Valley Route.

December 10, 1853, bids were opened and contracts were let for construction (graduation and masonry) on Sections 1 to 50 inclusive. This covered the entire line Quincy to Galesburg.

At a stockholders meeting April 13, 1854, an election of directors resulted in the following members: John Wood, Hiram Rogers, James D. Morgan, Lorenzo Bull, N. Bushnell, John W. Brooks, James F. Joy, C. G. Hammond and Isaac N. Burch.

This election gave four board members representing the Forbes' interests; as compared with two elected in 1853, and shows a gradual trend toward ultimate control of the road by those interests.

At a board meeting November 29, 1854, the President was authorized to make an agreement with the Chicago and Aurora and the Central Military Tract roads "for interchange of cars and other rolling stock, and other matters pertaining to transaction of business between Quincy and Chicago."

At a stockholders meeting held April 12, 1855, the same board of directors was re-elected.

On May 12, 1856, the annual stockholders meeting was held in Galesburg, at which time the present board was re-elected, except C. G. Hammond, who was succeeded by Thompson Chandler.

At a board meeting December 8, 1856, it was reported that the outstanding obligations against the Quincy-Galesburg line were:

\$1,200,000—under authority of June 27, 1853

\$1,000,000—under authority of November 29, 1854

The Board was empowered to borrow an additional \$600,000 to effect completion of line. All the above obligations being covered by 1st mortgage—2nd mortgage and income bonds.

February 10, 1857 by Act of Illinois Legislature the name of the road from Quincy to Galesburg was changed from Northern Cross Railroad Company to Quincy and Chicago Rail Road Company.

On this date a new seal of the usual size was adopted, and had for device "A locomotive engine in the center, and near the margin around the device is engraved the name of the Company, Quincy and Chicago Rail Road Co."

During the time between letting of first contracts for building the line from Quincy to Galesburg, December 10, 1853, and the date when name of the road was changed to the Quincy and Chicago Rail Road Co., February 10, 1857, many events occurred leading up to eventual passing of ownership to the C. B. & Q. Railroad Co.

The line was completed and placed in operation January 31, 1856, and was operated by the company until February 10, 1857, the date of change of name.

July 1, 1856 the Quincy and Chicago Rail Road Co. defaulted on its bond interest payments.

April 1, 1857, an "agreement for interchange of cars and other rolling stock and other matters pertaining to transaction of business between Quincy and Chicago" was concluded. It was then agreed between the two roads—Quincy and Chicago Rail Road Company and Chicago, Burlington and Quincy Rail Road Company—"to unite their roads in a common operating agreement, under one General Superintendent." Col. C. G. Hammond, then General Superintendent of the C. B. & Q. R. R. Co. was appointed to this position on May 25, 1857. This appointment doubtless explains why he was relieved of his duties on the Board of Directors of the C. B. & Q. R. R. Co. at the election held May 14, 1856, and Mr. Thomas Chandler elected in his stead.

At a meeting held May 27, 1857, the president (Bushnell) was directed to "execute a deed for and in behalf of the Company to the Trustees, under the Mortgage for the road from Quincy to Galesburg."

On April 10, 1857, the operation of the Quincy and Chicago Rail Road Co. was taken over by the C. B. & Q. R. R. Co. The Trustees continued to hold title to the property until Master's Deed under foreclosure proceedings July 30, 1865, was given to the Chicago, Burlington and Quincy Rail Road Company—the only bidder at Master's Sale, April 28, 1864.

On June 24, 1864, by Legislative Act, at the time of acquiring the Peoria and Burlington (formerly the Peoria and Oquawka) Railroad, the name of the Chicago, Burlington & Quincy Rail Road Company was changed to the Chicago, Burlington & Quincy Railroad Company.

These were the last transactions leading up to the final organization of the Chicago, Burlington & Quincy Railroad Company, effected June 24, 1864, which name has continued unchanged since that date.

Preceding papers by Mr. Newton have appeared as follows:

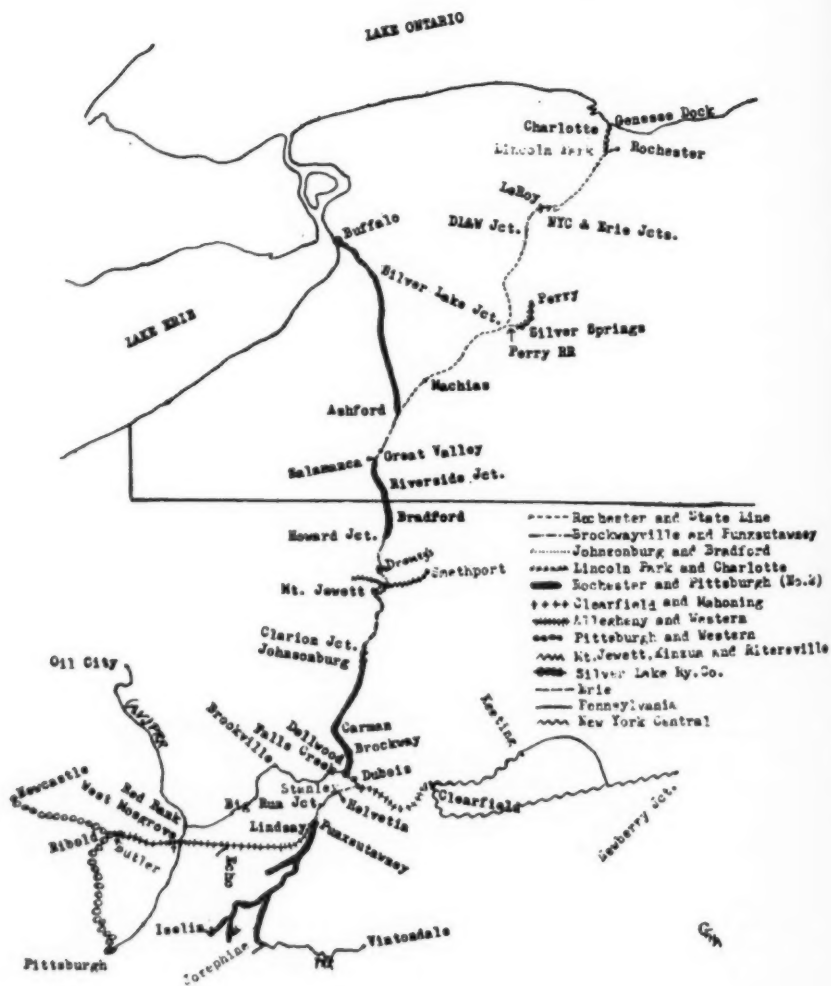
Bulletin 74—The Aurora Branch R. R. Co., 1849-1852

Bulletin 76—The Chicago & Aurora R. R. Co., 1852-1855

Bulletin 78—The Chicago, Burlington & Quincy R. R. Co., 1855-1856

Bulletin 80—The Central Military Tract Railroad, 1851-1856

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Map of the Buffalo, Rochester & Pittsburgh Ry. Co.

The Railroads of McKean County

By C. F. H. ALLEN

BUFFALO, ROCHESTER & PITTSBURGH RY.

The Buffalo, Rochester and Pittsburgh Railway Co. is situated in western New York and Pennsylvania. It has lost its identity in the present generation, by virtue of its coming under the control of the Baltimore and Ohio in 1930. As has so often been the case in the history of American railroads, the Buffalo, Rochester and Pittsburgh was the result of the combination of a number of smaller roads in the same general territory, by merger, perpetual lease, and operation as integral parts of the parent company. In this section an account of the component roads is given, in approximately chronological order, with other pertinent historical points of interest; there is also included an abbreviated statement of the transfer of its control to the Baltimore and Ohio. At this point it may be noted that the word "The" does not appear in the name.

In 1869 there were a number of flour mills located in Rochester, New York, where considerable water power was available from the Genesee River, and where the milling industry had developed to such an extent that Rochester had become known as the "Flour City." The grain and other farm produce from the agricultural section of western New York, comprising Monroe, Genesee, Wyoming and Cattaraugus Counties, was hauled to Rochester by team. With a view to securing this business, as well as having a more remote possibility of extending down into the Pennsylvania coal fields, (Reynoldsville, in particular), the construction of a railroad found ready supporters. The prime movers were Oliver Allen, D. D. S. Brown, and Donald MacNaughton, residents of Scottsville, along the proposed route, just south of Rochester.

History of Predecessor and Component Railroads

1. Rochester and State Line Railroad Co. was incorporated Oct. 6, 1869, to build from Rochester to the Pennsylvania state line in Allegany County at or near where the Genesee River crosses. By an amendment dated Aug. 1872, the southern terminus was changed to Salamanca. Bonds (\$600,000) were issued by the City of Rochester, and towns along the route contributed \$500,000. The 24 miles from Rochester to LeRoy was completed and opened by Sept. 15, 1874; grading had also been completed to Salamanca at this time. After a delay of 2 years, construction was resumed on Aug. 30, 1876, and completed with the road opened for business, May 16, 1878. This line, amounting to 107.6 mi., was actually owned and operated.

In July, 1879, the majority of the stock was owned by William H. Vanderbilt, the road being practically owned and controlled by him until that year. At that time suits were brought against the railroad company by the City of Rochester, to recover \$600,000 which had been contributed towards the construction of the road. The suits were decided against the city, in favor of the company. Mr. Vanderbilt dropped out

of the management, and the road was unable to pay the interest on the 1st mortgage bonds, which fell due on Jan. 1st. Mr. Sylvanus J. Macy was appointed receiver on Dec. 23, 1880, and the property was sold under foreclosure on Jan. 20, 1881, to Walston H. Brown and associates of New York City. It was reorganized and then incorporated on Jan. 29, 1881, as the

2. Rochester and Pittsburgh Railroad Co. (No. 1). It owned and operated the 108 miles between Rochester and Salamanca. It was consolidated, as described below, on Nov. 28, 1881, to form the Rochester and Pittsburgh Railroad Co. (No. 2).

3. Great Valley and Bradford Railroad Co. was chartered on July 25, 1881, to build from Great Valley, N. Y., to a point on the Pennsylvania state line in Cattaraugus County, where it meets McKean County, Pa. There was no construction.

4. Rochester and Charlotte Railroad Co. was chartered Apr. 21, 1881, to build from Rochester to Charlotte, (a village where the Genesee River empties into Lake Ontario). There was no construction.

5. The Pittsburgh and New York Railroad Co. was chartered on June 27, 1881, to build from a point on the Pittsburgh and Western Railroad, opposite the mouth of Red Bank Creek (near the present Red Bank) in Armstrong County, Pa., to Bradford, Pa. There was no construction.

6. Buffalo, Rochester and Pittsburgh Railroad Co. was incorporated Aug. 18, 1881, to build from Machias on the Rochester and Pittsburgh RR. Co. (No. 1) to the city of Buffalo. There was no construction.

7. Bradford and State Line Railroad Co. was incorporated Sept. 23, 1881, to build from a point at or near the terminus of The Pittsburgh and New York RR. in Bradford, Pa. to a point on the N. Y. state line where Tuna Creek intersects. There was no construction.

8. Rochester and Pittsburgh Railroad Co. (No. 2) was incorporated on Sept. 28, 1881 in both New York and Pennsylvania for the consolidation of two groups of roads. An agreement was filed Nov. 13, 1881, in Pennsylvania for consolidation of the

Rochester and Pittsburgh (No. 1)
Bradford and State Line
Buffalo, Rochester and Pittsburgh
Great Valley and Bradford
The Pittsburgh and New York

An Agreement was filed Nov. 28, 1881, in New York for consolidation of the *

Buffalo, Rochester and Pittsburgh
Great Valley and Bradford
Rochester and Charlotte

By consolidation the Rochester and Pittsburgh (No. 2) acquired 108 mi. of road already built, and they subsequently built from Buffalo to Ashford, an extension south to Punxsutawney, and 3.3 mi. of the Beech Creek branch. They operated the 1 mi. of the Perry RR., and 27.2 mi.

of the Brockwayville and Punxsutawney RR. They had trackage rights of 6.5 mi. from the Silver Lake Ry. Co., and 36.2 mi. from the New York, Lake Erie and Western Coal and RR. Co. (Bulletin 76, pp. 48) between Crawford Jet. and Howard Jet. and from the latter to Johnsonburg. They granted trackage rights (a) over 25 mi. of the Brockwayville and Punxsutawney to the Allegheny Valley RR. Co. and to the Ridgway and Clearfield RR. Co. (both parts now the Penna. R. R.), and (b) over the 1 mi. of Perry RR. to the Silver Lake Ry. Co. They owned the entire capital stock of the Rochester and Pittsburgh Coal and Iron Co., the Brockwayville and Punxsutawney RR. Co., and the Perry RR. Co.

A contract with the Pennsylvania was entered into in 1882, under the terms of which the R. & P. trains were to run from Falls Creek to Pittsburgh over the Allegheny Valley R. R.

The Rochester and Pittsburgh Coal and Iron Co. had acquired large coal properties near Punxsutawney. The railroad thus began its career as a coal carrier road, and like most pioneer lines, found it difficult to earn its fixed charges during the early development of the principal traffic for which the line was constructed. In 1884, the road was again placed in a receivership by reason of a default on its second mortgage bonds. The sale of the property under foreclosure proceedings took place the next year, the road being purchased on Oct. 16, 1885, by Mr. Adrian Iselin of New York and associates. It was their intention to organize a new company to take over and operate the property, but the minority stockholders of the Rochester and Pittsburgh in Pennsylvania instituted an action restraining the referee from transferring the property in that state to another corporation not in that state. Accordingly, two corporations were organized.

9. Buffalo, Rochester and Pittsburgh Railroad Co. filed a notification, dated Oct. 22, 1885, with the secretary of state on Oct. 28, 1885, (date of incorporation) a notification of the formation of a succeeding company. "On Nov. 7, 1885, Mr. Iselin transferred to this company the property, rights and franchise formerly belonging to the Rochester and Pittsburgh (No. 2) in the State of New York."

10. On Oct. 23, 1885, the Pittsburgh and State Line Railroad Co. was incorporated in Pennsylvania, and on Oct. 29, Mr. Iselin transferred to it all the Pennsylvania property. It owned no equipment.

The two companies were operated as a unit by the Buffalo, Rochester and Pittsburgh, until the Pennsylvania courts appointed a receiver, Mar. 23, 1886, for the Pittsburgh and State Line. After the necessary court procedures had been complied with, the titles were cleared and the receiver was dismissed, Mar. 9, 1887.

11. Buffalo, Rochester and Pittsburgh Railway Co. was incorporated in Pennsylvania on Mar. 10, 1887, and in New York on the 11th as a consolidation of these two companies. At this date it owned 60 locomotives and 4,182 cars.

It is now necessary to digress somewhat, and consider some of the other component companies.

12. Brockwayville and Punxsutawney Railroad Co. was incorporated in Pa. on May 17, 1882, to build from near Falls Creek to Punxsutawney. Construction was started in 1882; the road was completed (27.2 mi.) on Sept. 15, 1883, and on Oct. 6, 1883, it was leased to the Rochester and Pittsburgh RR. (No. 2). It was always operated by others. It was merged with the Buffalo, Rochester and Pittsburgh on Nov. 27, 1891.

13. The Johnsonburg Railroad Co. was incorporated Nov. 15, 1887, in Pennsylvania. On Nov. 19, 1888, the name was changed to the

14. Johnsonburg and Bradford Railroad Co. Its purpose was to improve the line in Pennsylvania, and reduce the trackage used over the Erie RR., and especially to avoid the use of the famous Kinzua bridge (Bulletin 76, pp. 50). It was planned to build from a connection with the Pittsburgh and State Line RR. near Johnsonburg (Clarion Jet.) to a point near Howard Crossing in McKean County. The 18.9 mi. from Howard Jet. to Mt. Jewett was opened on June 1, 1893, and operated by the B. R. & P., by virtue of their ownership of all the capital stock. The completion of this construction reduced the trackage used, belonging to the Erie, to 20.6 mi. It was conveyed to the Buffalo, Rochester and Pittsburgh on Apr. 13, 1907.

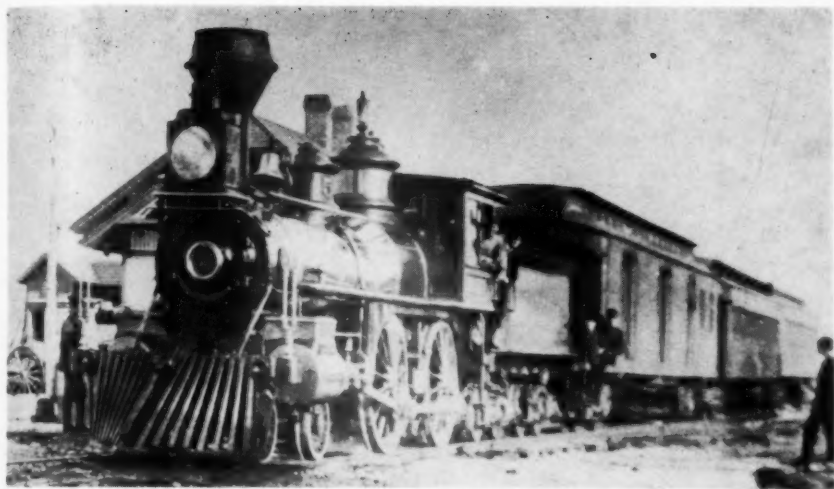
15. In order to reach Lake Ontario, near Rochester, the Lincoln Park and Charlotte RR. was chartered on Dec. 1, 1888, to build between these points; Lincoln Park is on the west side of the city of Rochester. It built and owned 10.2 miles, including a branch to the Charlotte Docks 2.5 mi. from the mouth of the Genesee River. This provided facilities for the delivery of coal to Lake Ontario boats. The road was opened on Aug. 12, 1889. Its property and franchises, except the right to be a corporation, were disposed of to the B. R. & P. by an indenture dated Jan. 1, 1889, effective Dec. 5, 1889.

16. The Silver Lake Railroad Co. was incorporated on June 19, 1869, to build the 6 mi. from Perry to the Erie RR. at or near E. Gainesville (now Silver Springs). They did no construction work. It was merged with the Rochester and Pine Creek Railroad prior to 1871 (at some date unknown according to the I. C. C. Valuation Report; Poor's 1910 Index says July 11, 1870).

17. Rochester and Pine Creek Railroad Co. was incorporated on July 11, 1870, to build from a point at or near Castile station to a point at or near Caledonia.

18. On Mar. 22, 1877, the name was changed to the Silver Lake Railway Co. (No. 1) by a special act of the state legislature. It constructed the 6.5 mi. between Perry and Silver Springs. This railway was controlled by the Railroad Commissioners of the town of Perry, N. Y., through ownership of all the capital stock. On June 1, 1886, it was sold to Arthur G. Yates, and the company was reorganized without a change in the name.

In Poor's Manual for 1886 (p. 651) it states that the Silver Lake Railway Co. (No. 1) was purchased by the Bradford, Bordell and Kinzua Railroad for \$120,000 in 1886, "since the close of the present fiscal year." I have been unable to verify this, or find further mention of it in this



First passenger train on the B. R. & P. at Springville, N. Y. Nov. 19, 1889. Loco. #50.



B. R. & P. #161 at Ridgway, Pa.

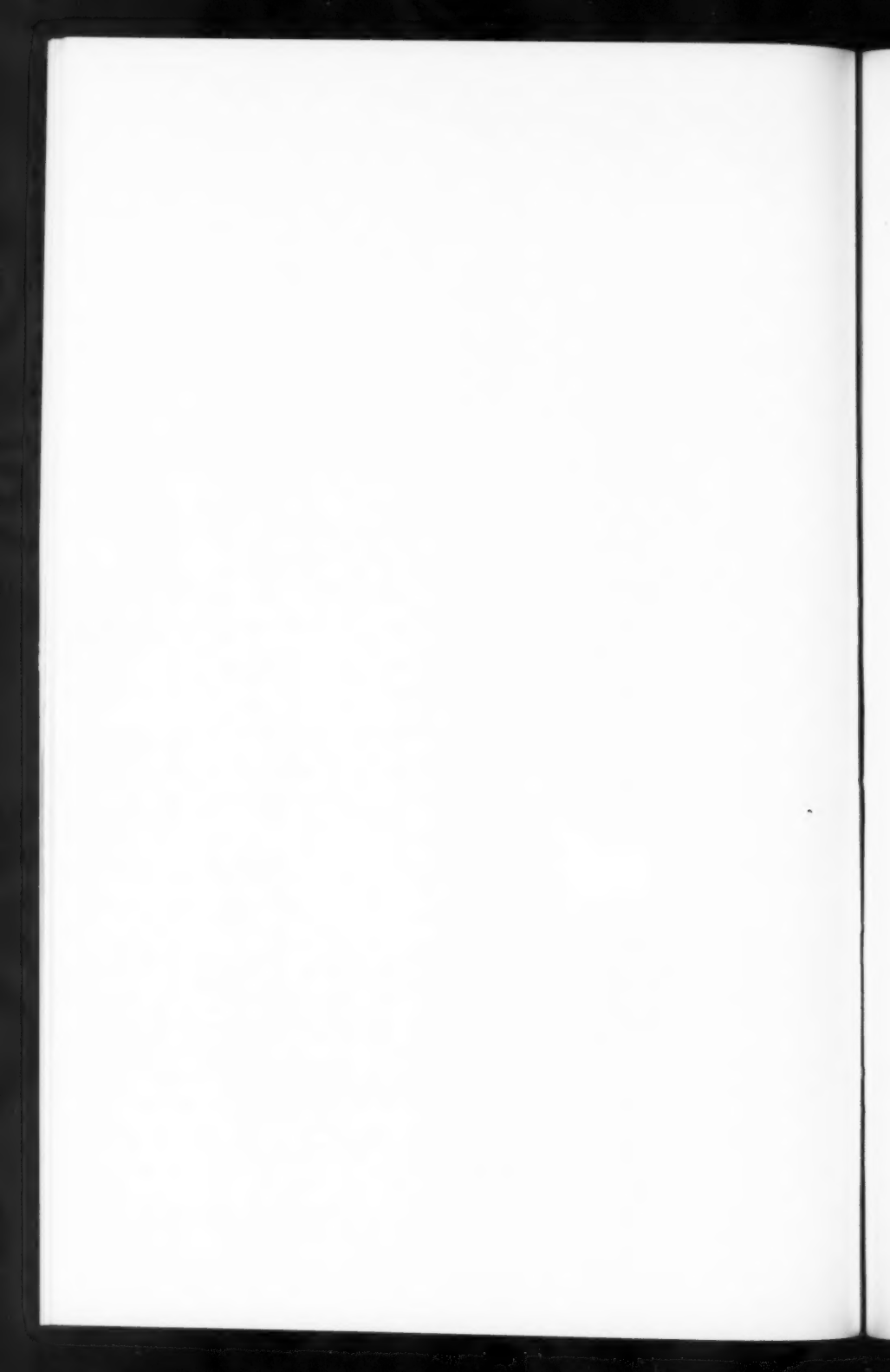
Courtesy of Harry H. Kingston.



B. R. & P. #723 with train north of Bell's Mills, Pa., May 23, 1924. Sixty cars of dock coal.



B. R. & P. #170 and train.



connection. Mr. Clark of the present organization says that so far as is known, the BB&K had no relation to the Silver Lake Ry., nor was Mr. Yates interested in the former.

19. The Silver Lake Railway Co. (No. 2) owned and operated the 6.5 mi. from Perry to Silver Springs, and had trackage rights of 1 mi. between Silver Lake Jet. and Silver Springs from the Rochester and Pittsburgh Railroad Co. (No. 2), who, in turn, had the trackage rights of 6.5 mi. over the above. It was controlled by the BR&P by virtue of ownership of the entire capital stock, and was sold to the BR&P on Sept. 29, 1910.

20. Perry Railroad Co. was chartered on May 9, 1882, to build a line 1 mi. in length from a junction with the Rochester and Pittsburgh Railroad Co. (No. 2) near E. Gainesville to a connection with the Silver Lake Railroad Co. at Gainesville. It was constructed in 1882 by the R&P RR. (No. 2) and leased to them for a term of 99 years from June 6, 1882. It owned no equipment. It was merged into the R&P RR. (No. 2) on Nov. 23, 1883.

21. For the purpose of reaching markets on the Philadelphia and Reading, and Central Railroad of New Jersey, by means of a connection with the Beech Creek Railroad (afterward a part of the New York Central and Hudson River RR.), the Clearfield and Mahoning Railway Co. was organized to construct, operate, and maintain a line from the BR&P at Jefferson Line, Pa., (now Clearfield and Mahoning Jet., near Dubois) to a connection with the Beech Creek RR. Co. near Clearfield. In Poor's Manual for 1893, p. 100, an extract from the president's report to the BR&P on the Clearfield and Mahoning, contains the following: "On May 10, 1892, an important traffic contract was entered into for the term of 50 years, between your company, the New York Central & Hudson River RR. Co. as lessee of the Beech Creek RR., and the Philadelphia & Reading RR. Co., by which we agree to build a railroad 26.1 mi. in length . . . from a point on our main line 3.59 mi. south of DuBois to the Beech Creek RR. in the town of Clearfield . . . This link will form part of a through line to all points on the P&R system . . . In order to conform to the laws of the State of Pennsylvania, a charter was taken out in the name of the Clearfield and Mahoning Railway Co." The road (26 mi.) was completed in May, and opened on June 30, 1893. It owned 10 locomotives. On Jan. 3, 1893, it had been leased in perpetuity to the BR&P.

22. Bridgeport and Widemire Ry. Co. was incorporated on Nov. 20, 1896, to connect the works of the Harbison-Walker Refractories Co. at Brampian, Pa. with the Clearfield and Mahoning, 2.6 mi. The construction was partly completed, when on Jan. 1, 1897, it was leased for 5 yrs. to the Buffalo, Rochester and Pittsburgh; the latter company finished the construction the same year. The entire property was sold to the Clearfield and Mahoning on Feb. 11, 1913.

23. Mahoning Valley Railroad was incorporated on Oct. 18, 1890, to build a railroad in Jefferson and Clearfield Counties (Helvetia to Stanley). It built 1.9 mi. and operated it until 1896 when, on May 1st, it was leased to the Buffalo, Rochester and Pittsburgh in perpetuity. It owned 41 cars.

24. Articles of Association of the Jefferson and Allegheny Railway Co. were filed on Oct. 8, 1894, providing for the construction of a line from Punxsutawney to a point near Sharpsburg, about 90 mi.

25. Articles of Association of the Allegheny and Western Railway were filed on Feb. 7, 1896. This company was incorporated to build a line from a point at or near Mosgrove to a connection with the Pittsburgh and Western Railway at or near Newcastle Jet., about 62 mi.

26. Allegheny & Western Railway Co. was incorporated in Pennsylvania on Jan. 22, 1898, as a consolidation of the Allegheny and Western Ry., and Jefferson and Allegheny Railway Co's. No construction was acquired from the two component roads, but the new company built 71.4 miles from Lindsay to Butler; this was completed by Sept. 4, 1899, and taken over for operation by the BR&P Jan. 1, 1900, under a lease, for the period of its corporate existence. A connection was made with the Bessemer & Lake Erie RR. at Butler Jet.

Allegheny Terminal Co. was chartered on July 28, 1899, and opened on Sept. 24, of the same year. It provided a freight terminal in Allegheny City (across the river from Pittsburgh). It was controlled by the Allegheny and Western Ry. Co. through ownership of its entire capital stock; its property was leased to the A&W by verbal agreement from the date it was placed in operation. Both are now operated by the Buffalo, Rochester and Pittsburgh.

27. The Reynoldsville and Falls Creek Railroad Co. (not shown on the map) was incorporated in 1893; it extended from Falls Creek to a point near Reynoldsville, Pa. (10.7 mi.). Operation was taken over by the BR&P on June 12, 1929. It has been abandoned; the line was salvaged in 1934. Two of its locomotives were sold to the Arcade and Attica.

28. The Rural Valley Railroad was a trade name and never incorporated. It extends 5 miles from Echo to Yatesboro. It was owned by the Cowanshannock Coal and Coke Co., a subsidiary of the Rochester and Pittsburgh Coal Co. In 1925 it was purchased by the Allegheny & Western Ry. Co., and is still being operated. This concludes the description of the component roads comprising the BR&P.

Further extensions were constructed in the years 1904-1912 to tap the coal fields in Indiana County. The principal line was built from a point near Punxsutawney (Indiana Jet.) to Josephine; including branches to the various coal mines; the aggregate mileage was 63. As a result, the major part of the coal tonnage handled by the BR&P now originates in these branches in Indiana Cty., while in the early days the principal contributing area was along the main line between Reynoldsville and Punxsutawney. A 3 mi. branch at Craigsville was constructed in 1913, to get limestone for the Pittsburgh blast furnaces.

The BR&P has a very well-constructed road. The line from Buffalo and Rochester to Salamanca is over flat to gently-rolling country, crossing only minor divides. Starting at Bradford in the oil country the line rises to the Big Level (Bulletin 76, pp. 11) by means of a loop which starts near Howard (about 5 mi. south of Bradford) and extends to Bingham (about 12 mi. north of Mt. Jewett) on a 1.5% grade, broken

to a 1% grade on the Horseshoe Curve at Droney's. From Mt. Jewett (elevation, 2,200 ft.) the right of way continues high to Punxsutawney, from which point it is hilly to Pittsburgh. There are four tunnels in the line. The road crosses the Allegheny River three times. It is laid with 80, 90 and 100-lb. rail. As of 1930, there were 601.97 miles of first track, and 670.70 miles of other track, totaling 1,272.67 miles. The quaint lozenge-shaped green and yellow switch targets are still seen on the Rochester branch.

Leases, Trackage Rights, etc.

In addition to the mileage owned, the BR&P operates over other railroads for some distances. As previously mentioned, in 1882 the Rochester and Pittsburgh (No. 2) entered into an agreement with the New York, Lake Erie and Western Coal and RR. Co. whereby 36 miles of the latter's tracks were used to Johnsonburg (Clarion Jct.). This mileage being reduced to 20.47 miles by the construction of the Johnsonburg and Bradford RR. (this required an adjustment of the contract in 1892). In the interest of mutual economy, beginning June 1, 1906, the contract with the Erie was modified by transferring the operation of this stretch of road to the BR&P, the Erie continuing its maintenance. This was further modified as of July 1, 1907, since which date the BR&P has operated and maintained the track, the Erie Co. paying its proportion of the expenses. This last contract continues in force for 99 years and until the expiration of two years' written notice thereafter. On May 1, 1907, the BR&P made an agreement with the Erie, granting, for a period of ten years (with privilege of two successive renewals), trackage rights over the 50.7 mi. between Clarion Jct. (near Johnsonburg) and Big Run.

On Sept. 18, 1898, the BR&P leased running rights between Butler Jct. and Newcastle Jct., and to Pittsburgh from the Pittsburgh & Western Railway Co. (controlled by the Baltimore and Ohio since 1891, by purchase of a controlling interest). The three cities in the name, BR&P, were thus justified. It now had connections with the Pittsburgh district, which was even then considered the greatest freight-producing area in the U. S. According to the Centennial History of Rochester, Vol. 1, p. 319, the first through passenger train between Rochester and Pittsburgh was operated in 1899.

The portion of the Indiana Branch between Josephine and Vintondale is operated under a trackage rights agreement with the Pennsylvania RR., dated July 30, 1902. This agreement was for a period of 25 years, and was to continue thereafter until terminated by a two years' written notice. It is still in effect. Shuman Run Y is a wye at Vintondale, used for turning purposes. The purpose of making this agreement was to reach large coal operations in this district.

In order to reach their isolated segment in Bradford after the abandonment of the Olean, Bradford and Warren, the Pennsylvania obtained trackage rights over the BR&P from Riverside Jct. to Bradford.

In 1902, the BR&P entered into a 25-year contract with the New York Central & Hudson River RR., which granted operating rights over the Beech Creek Extension, as another outlet for interchange of all kinds of traffic with the Philadelphia & Reading. This right was never exercised. Traffic has always interchanged via the New York Central between Clearfield and Newberry Jet.

On July 7, 1905, the BR&P leased trackage rights to the Buffalo and Susquehanna, of 15.44 miles from B&S Jct. (near Stanley) to Juneau Jct. (on the Indiana branch). The lease was to run from July 1, 1906 for 20 years, and thereafter until terminated by 2 years' notice given by either party to the other. This enabled the B&S to have access to its disconnected line extending from Juneau to Sagamore.

In October, 1943, the Buffalo and Susquehanna applied to the Interstate Commerce Commission for authority to operate under trackage rights over the BR&P line from B&S Jct. to Dubois, 5.41 miles, and abandon its own parallel line between these points. This authority was granted; the track was removed in 1945, and a new connection was built between the former BR&P and the B&S just south of DuBois.

On Oct. 1, 1909, the BR&P, and Clearfield & Mahoning entered into an agreement with the Lake Shore and Michigan Southern Ry. and the Jamestown, Franklin & Clearfield RR. (both now New York Central) giving the NYC system trackage rights between Falls Creek and Clearfield. This agreement covered a period of 25 years, and continues in effect thereafter until two years' written notice. It is still effective.

Additional trackage rights for short distances were (and still are) in effect with the Buffalo Creek RR., the Delaware, Lackawanna & Western RR., the Baltimore & Ohio RR., the Pennsylvania RR., and the New York Central system.

In addition to all the railroads in Buffalo, N. Y., the connections, as of 1917, with other railroads were as follows:

Bessemer and Lake Erie; at Butler, Pa.

Baltimore and Ohio; at Butler Jet., Mt. Jewett, Newcastle, Pittsburgh.

Buffalo and Susquehanna; at Juneau, Sykes, (now Sykesville).

Delaware, Lackawanna and Western; at DL&W Jct. (near LeRoy, N. Y.).

Erie; Bradford, Brockwayville, Clarion Jet., Howard Jet., Mt. Jewett, Newcastle, in Pa., and LeRoy, Limestone, Salamanca and Silver Springs, N. Y.

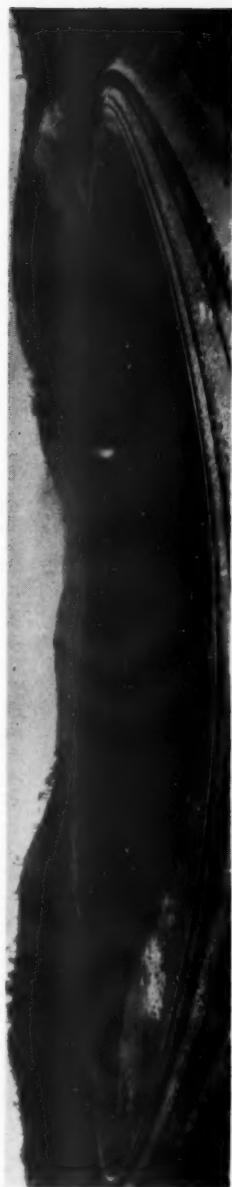
Genesee and Wyoming; P&L Jct. (near Mumford, N. Y.).

Lehigh Valley; P&L Jct. (near Mumford, N. Y.).

Mt. Jewett, Kinzua and Riterville; at Backus, Mt. Jewett, Pa.

New York Central; C. B. Jet., Clearfield, Rossiter, and Willow Grove, Pa. and Charlotte, LeRoy, Maplewood, and Rochester, N. Y. With the P&LE at Newcastle, Pa.

Olean, Bradford & Salamanca Ry.; at Bradford, Pa., and Limestone, Salamanca and E. Salamanca, N. Y.



Horseshoe Curve at Droney's, Pa., on B. R. & P. Ry.

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Pennsylvania, at Machias* and Rochester, N. Y., and Bickford, Brockway, Bradford, Butler, Curwensville, DuBois, Falls Creek*, Idlewild, Johnsonburg, Josephine, Newcastle, Pittsburgh, Punxsutawney, E. Mosgrove †, and Willow Grove in Pa.

Pittsburgh, Shawmut and Northern at Carman, Pa.‡

Pittsburgh and Shawmut at Dellwood and W. Mosgrove †, Pa.

Supplementary Physical Facilities

Since Punxsutawney and Josephine were pig iron centers, it was considered advisable to construct an ore dock at Buffalo. This 1,000 ft. dock has two Hulett ore-unloading machines, having a capacity for handling 10,000 tons daily, from vessels to cars.

With a view to more conveniently reaching Canadian markets, the BR&P, jointly with the Grand Trunk Ry. (now Canadian National), organized the Ontario Car Ferry Co. It thus became possible to ship coal in cars without unloading, to Cobourg, Ont. (58 mi.), in effect, lengthening both railroads by that amount, and shortening the distance between the coal mines of Pennsylvania and all points in eastern Canada, besides improving the transportation service by avoiding the congestion at Niagara Falls. Two boats are in operation; the "Ontario No. 1," placed in service in 1907 was so successful that a duplicate, the "Ontario No. 2" was added in 1915. Each boat has a track capacity for 28 loaded cars, and are licensed for carrying 1,000 passengers. During the summer 3 flat cars are available for shipping automobiles, a great convenience for tourists. On week ends and holidays the boats are jammed to capacity with pleasure-seekers. On the trip to Canada, the principal bulk commodity is coal, while pulpwood is carried in the opposite direction.

The BR&P owns a half interest in the Charlotte Docks Co., which is an organization for shipping coal in bulk by boat. The average coal-carrying boat has a 2,800 ton capacity, which is equivalent to a train of 40 70-ton cars. It requires 4-6 hrs. to load such a boat, depending on

* Use same station.

† Since the two tracks are at greatly different levels, the BR&P crossing the Allegheny River at a high level, while the other two run at right angles along the river bank, passengers desiring to change had to climb a long flight of steps to reach the BR&P.

‡ This was the Clarion River Ry., not described in the account of the PS&N by Capt. Robinson (R&LHS Bulletin No. 61, p. 76). The Clarion River Railway Co. was chartered on Dec. 17, 1889, and opened in 1892. The line extended 12 miles, between Croyland and Hallton; in 1899 a connection was projected from Croyland to the Buffalo, St. Marys and Southwestern at Centerville (now Kersey) and an extension to Brookville from Hallton was visioned. Although a detached property it became a part of the Pittsburgh, Shawmut and Northern, and abandoned by them in 1949.

It was sold on July 31, 1926, to the Tionesta Valley Ry. Co., a logging railroad operated by the Central Pennsylvania Lumber Co. When the lumber company announced their intention of abandoning the property, it was bought, at scrap price, by The Clawson Chemical Co., which operated a wood-distillation plant at Hallton. Some of the old cement bridge abutments of the Clarion River can still be seen at Carman, where the B&O (former BR&P) makes a mail stop.

The (second) Valley RR. (Bulletin 80, pp. 83) bought the residues of the Clarion River, and the Tionesta Valley.

the size and grade of coal. When it is considered that as high as 1,000,000 tons per year have been handled, it is easy to see what an important item this is to the railroad.

BR&P erected their own timber-treating plant near Bradford in 1910, for impregnating ties and other forms with preservative. This was the first plant of its kind on any eastern railroad. They also acquired a part of the property of the Jefferson Coal Co., and the Punxsutawney Coal Mining Co. in 1908 and 1911 respectively.

The principal commodity is soft coal, accounting for 62-67% of the freight traffic. All the coal mines on the BR&P are in the Reynoldsville-Clearfield region, so the freight rates are the lowest applicable from any section in Pennsylvania to eastern Canadian points. The coal reserve is estimated at 800,000,000 to 1,000,000,000 tons. During the period of extensive public hard road construction, the second largest tonnage was in sand and gravel. In other years it was manufactured goods (10-12%). Miscellaneous merchandise rose from 29% in 1920 to 48.5% in 1924. Originating traffic along the line consists of gypsum (blocks and plaster), salt, crushed stone, oil, bricks, tile, sewer pipe, and to a decreasing extent agricultural products.

The equipment as of 1930 was as follows: 32 passenger locomotives (22 Pacifics, 10 Atlantics); 112 freight locomotives (9 heavy Mallets, 55 road Mallets, 48 Mikados); 23 switchers; 48 steel coaches, 2 chair cars, one cafe coach, 5 observation cars, plus baggage, mail and combination cars; a total of 12,507 freight cars (including cabooses) of which 1,500 were box cars, the rest being mainly coal cars.

Owing to the severe grades around Mt. Jewett, the heavy freights are hauled by the 7500 series Mallet compounds (old 700 series, 2-6-6-2) with pusher service southbound ending at Bingham (7500 series) and northbound at Mile post 151, near Freeman (7300 series; old 800, 2-8-2 Mallet compounds). Light freights and work trains employ Consolidations, mostly those formerly on the Buffalo and Susquehanna (present 3100 series). Passenger service has been greatly curtailed. A 4-car train, hauled by Pacifics (5100-5200 series) has replaced the former excellent service which carried Pullman chair cars and sleepers. It is the most scenic route between Rochester or Buffalo and Pittsburgh.

The shops are at Lincoln Park and E. Salamanca, N. Y., and Dubois, Pa. Engine house facilities are at both these, and at Buffalo Creek, E. Salamanca, Clarion Jet., Butler Jet., and Punxsutawney.

The BR&P uses the Lackawanna terminal in Buffalo (rental), rents some facilities from the NYC in Clearfield and uses the B&O Terminal in Pittsburgh for passenger service, the trains back in; (freight at its own Allegheny Terminal). The Allegheny and Western owns the freight terminals at Butler and Newcastle.

In the previous account of the Buffalo, Bradford & Kane (Bulletin 78, pp. 74) it was noted that the BR&P purchased the 3-ft. road in 1906, in order to get the narrow gauge crossings. A contemporary New York paper, the "Olean Times," for July 25, 1906, records it in these words. "This little road (the BB&K), which was formerly a great moneymaker has changed hands several times; but the latest report is that it has

been exchanged for the last time. If the allegations of certain knowing people are correct one of the most famous narrow gauge roads in railroad history will soon cease to be a factor in the affairs of transportation. The story is to the effect that the B. R. & P. company has purchased the road, and will not operate it after the actual change takes place. It is presumed that the purchaser does not buy for the purpose of the additional traffic it will make for the B. R. & P. company. It may be more reasonably supposed that the larger company wants to get rid of the little road on account of two expensive crossings the B. R. & P. has to maintain on account of the agreements existing between the companies. One of these crossings is located at Bradford and the other one a short distance north of Mt. Jewett. A local official of the B. B. & K. company, when interviewed today, said that he could not verify the rumor. He merely asked if the questioner had received any official notification of the sale, which in all probability is consummated save the signing of the papers making the deal."

Management

After the purchase of the BR&P by Mr. Iselin and his associates in 1885, these financial interests dominated the company. The road was further extended and improved, as has already been described, through the wise and progressive policies of this management. A comprehensive plan for the development of the railroad, as well as the coal property acquired by the Rochester and Pittsburgh Coal and Iron Co. in Jefferson and Indiana Counties, was carried out. Along with the subsequent extension of the railway, this increased the wealth and prosperity of the entire territory along the line, and created a new route for trade and travel as well.

Quoting from page 7 of the "Shipper and Carrier," Sept., 1925:

"Looking backward nearly forty years, it is now difficult to conceive of any group of financiers who would be so courageous as to undertake the same task under laws existing since 1907, where the transportation line and the coal companies must be entirely independent of each other, because the proposed railway was largely dependent upon the development of the coal mines, and the coal company absolutely depended upon the construction and operation of the railway; all of which seems to point to the fact that nearly all of our greater developments in trade or transportation had their origin during that period of our national history when our commercial life was not so complex as at present and business initiative or success was not retarded by restrictive laws.

"Mr. Adrian Iselin was elected president and Mr. Wm. A. Baldwin vice-president in 1888. In order to increase the development of coal mines along its line in Pennsylvania, and place the railway in a stronger position, the interests of Messrs. Bell, Lewis and Yates, operators of large coal property near Reynoldsville, adjacent to the line, were acquired, and Arthur G. Yates of the above firm elected president of both the railroad and affiliated coal companies in 1890.

"Mr. Yates brought ability, courage, and business experience to the task of developing the properties of both railway and coal companies, so

that within a comparatively few years the success of both seemed well assured, having improved the railway and coal property and furthered materially the aims and aspirations of the owners.

"During the latter part of 1904, Mr. Wm. T. Noonan was appointed general superintendent of the BR&P, which was fast becoming an important line with large tonnage possibilities. His indefatigable energy, excellent judgment and wise administration soon impressed itself upon the entire organization, and has been reflected in the management and operation of the property ever since.

"Upon the death of Mr. Yates in 1909, Mr. Adrian Iselin, Jr., was elected president, and W. T. Noonan, vice-president and general manager, but in 1910, Mr. Iselin having declined reelection, Mr. Noonan was made president—Mr. Iselin remaining as vice-president." In 1930 there were three vice-presidents, Messrs. Harry Yates, Chas. T. O'Neal, and Thomas F. Brennan.

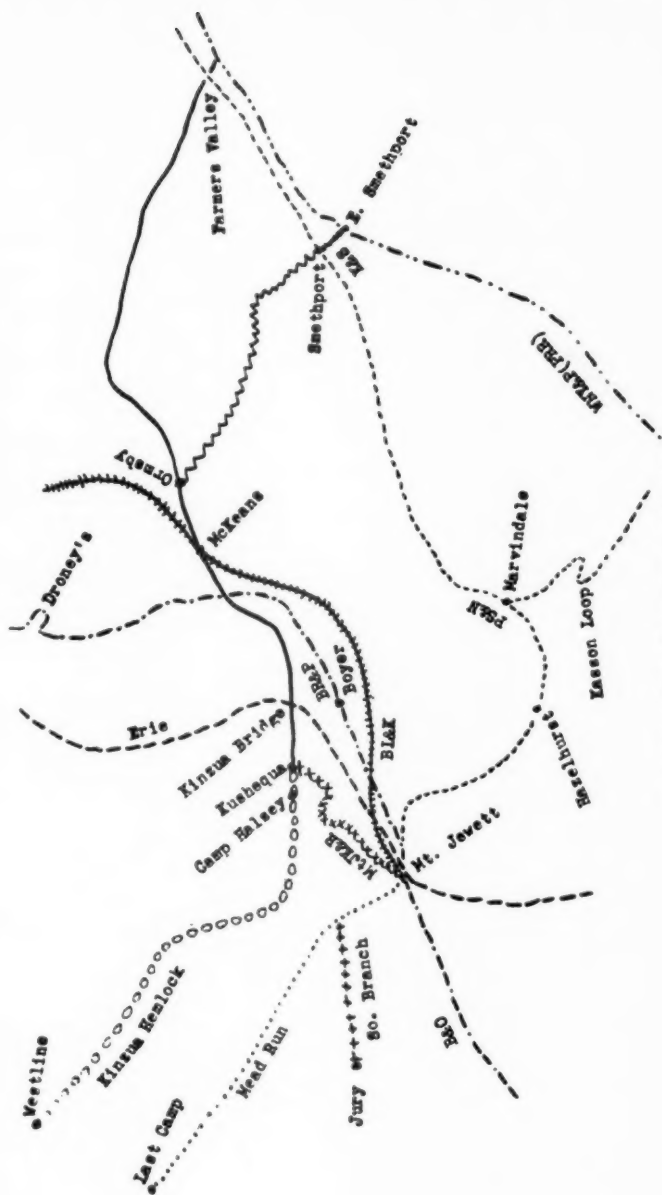
The Iselin family was of Swiss descent. Adrian Iselin, Sr., (1846-1935) joined a banking house in 1888. Both he and his son, Adrian, Jr., were active in railroad companies, and are not always clearly distinguished in lists of officers and directors. Both were directors of the Mobile and Ohio at different times from 1882-1907. The son was a director of the Southern Ry. in 1904-7; of the Reynoldsville and Falls Creek; vice-pres. of the BR&P from 1897-1909, pres. in 1910, and vice-pres. afterwards; treas. of the Clearfield and Mahoning; sect.-treas. of the Johnsonburg and Bradford while his father was president; and pres. of several iron and steel companies. The father was pres. of the BR&P in 1888-1890, and a director of the Columbus, Chicago and Indiana Central Ry., the Sioux City and St. Paul, and the East Tennessee, Virginia and Georgia RRs., and a trustee of the United States Rolling Stock Co. in 1876.

The first officers of the Rochester and State Line were Pres. Geo. J. Whitney, Vice-Pres. Oliver Allen, Sect. Don MacNaughton, and Treas. Geo. E. Mumford. "Like all pioneers, these men blazed the path of commercial progress in transportation, which finally opened up the prosperous country now served by the present railway in western New York and Pennsylvania . . ."

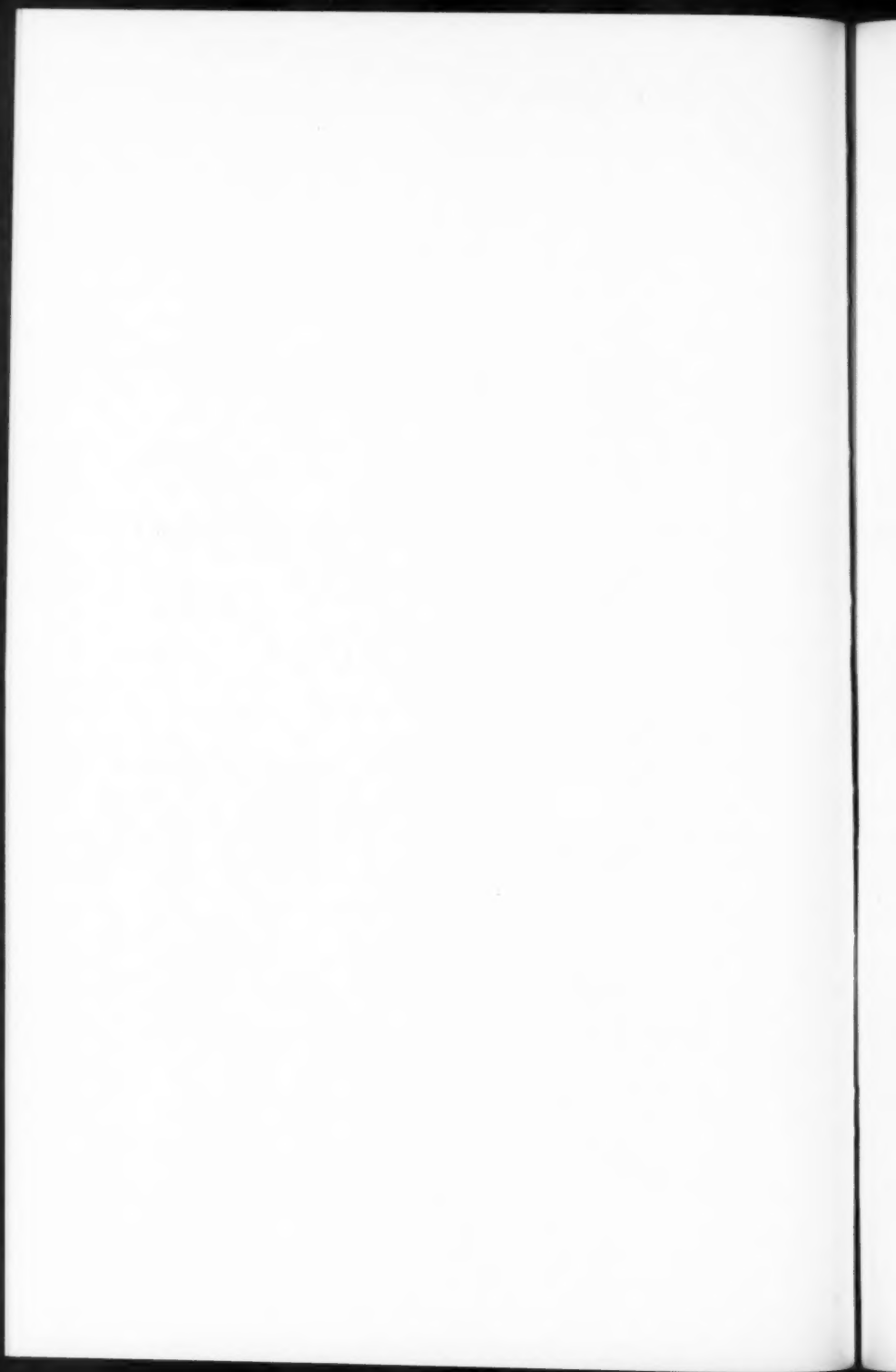
Consolidation

The Buffalo, Rochester and Pittsburgh Ry. is now a part of the Baltimore and Ohio system; although controlled by this system, it is operated by its own officials. The rolling stock is lettered in the same way as the other B&O units, with BR&P in small letters. The steps in the acquiring of the control by the B&O are of interest, and the more important ones will be described here.

On Aug. 3, 1921, the Interstate Commerce Commission published its tentative plan, dividing the railways of the United States into several large systems. Of these, the Baltimore and Ohio was No. 5. The Erie was No. 4, which also included the Delaware and Hudson, Buffalo, Rochester and Pittsburgh, and the Buffalo and Susquehanna (for an account of this railroad, see R&LHS Bulletin No. 49, p. 33). L. F. Loree



Mt. Jewett, Kinzua and Riterville, and related lines.



of the Delaware and Hudson had his own ideas about a serviceable system; a petition of the D&H to lease the BR&P was turned down by the I. C. C. on Dec. 13, 1927.

The Baltimore and Ohio also had ideas on the subject of systems: on Jan. 30, 1929, their directors approved the proposed acquisition of control of the BR&P and of the B&S. A few days later, they filed a plan of unification which included the B&O, BR&P, B&S, CRR of N. J. and the Reading. On Mar. 1, 1929, the B&O agreed to purchase 84.8% of the outstanding stock of the BR&P (subject to the approval of the I. C. C.), and on June 8th they applied to the I. C. C. to be allowed to do so, thus gaining the desired control.

A hearing was held on July 24-25. The application was opposed by the D&H. The Mt. Jewett, Kinzua and Riterville asked to be included. Other interested witnesses included the Pennsylvania, Wabash, and Pittsburgh and West Virginia. After several meetings, on Dec. 9th the I. C. C. completed its plan for the consolidation of the roads, essentially as requested by the B&O. The application was approved on Feb. 11, 1930, the conditions specified by the I. C. C. having been complied with. The B&O accepted on Feb. 25, 1930, thus acquiring control of the BR&P. The final order of the I. C. C. was dated Feb. 28th. Although controlled, the BR&P is operated by its own officials.

In connection with the deliberations, the B&O proposed a new "Rainbow Route" between New York and Chicago, which would be 75-85 mi. shorter than any then operating. This included 74 mi. of the BR&P, from Butler to B&S Jet. (about 5 mi. south of Dubois), and 50 mi. on the B&S (B&S Jet. to Driftwood). While such a route would delight railway fans the presence of severe grades and curves would make competition difficult, and the plan never proceeded beyond the stage of contemplation.

ACKNOWLEDGMENT. The valuable assistance of Messrs. E. D. Davis and U. V. Clark of the present Freight Department of the Baltimore and Ohio in Rochester, and of Mr. Harry H. Kingston, Jr., now retired but formerly editor of the Buffalo, Rochester and Pittsburgh employees' magazine, is gratefully acknowledged. They loaned copies of the Valuation Reports of the Interstate Commerce Commission, made available pictures, and supplied many details.

IV. MT. JEWETT, KINZUA AND RITERVILLE

For most of its life the Mt. Jewett, Kinzua and Riterville * Railroad Co. owned and used for carrier purposes in the state of Pennsylvania a maximum of 56 miles of standard gauge road. The parent road was built with a width of 3 feet, but this was shortly changed to standard. Most of its extensions were acquired by leases. The composite road became known as "The Kushequa Route" (most railroads at the turn of the century were popularized by route names); it comprised the following companies:

* Riterville (Rietterville?) is the Riderville of the Erie RR. Co. about 3 miles northeast of Kushequa. Although hints have appeared that there was a branch built from Kushequa to Riterville, Mr. E. O'N. Kane, Jr. says that to the best of his knowledge there was not.

Mt. Jewett, Kinzua and Riterville RR.
Mead Run RR.
Kushequa RR.
Smethport RR.
Kane RR.
Keating and Smethport RR.
Buffalo, Bradford and Kane RR.

All these roads had the same officers, except the Keating and Smethport prior to its lease in the MtJK&R in 1911. Their offices were in Kushequa.

The region traversed by the MtJK&R was hilly; the soil is clay and loam, over sandstone. Most of the settlements were of a temporary nature and were abandoned when the natural resources were depleted. Many of the names (Last Camp, Garnet) are romantic; others refer to the individual who owned or operated a mill, tannery, and the like. For instance McAmbley had a sawmill and the stop was known as McAmbley's (the apostrophe was usually omitted); similarly with McKean, Gaffney, Guffey. Evano was named for Dr. Evan O'Neill Kane, Wambled for a family in Kane. Granere was a milltown. Jury, Granere, Evano and others are all ghost towns. Kushequa, a village with a population of 300 in the valley of Kinzua Creek, is about 4 miles north of Mt. Jewett which is on the Big Level, and 300 ft. lower down than Mt. Jewett. At one time it was a bustling community with sawmills, wood-working, glass and chemical plants. Today but 25 families live there, and there is no railroad. The main watercourse is Kinzua Creek which flows westerly under the famous Kinzua Bridge, from near Ormsby to the Allegheny River at Kinzua, 50 miles to the west. South Branch refers to the south branch of this creek. Mead Run is a small tributary, west of Mt. Jewett, between the main Kinzua Creek and its south branch. At the turn of the century Mt. Jewett was in its heyday. There were 22 regularly scheduled passenger trains daily. Some did not go very far, to be sure, but they all handled passengers, mail and express. It was said that Mt. Jewett had the largest passenger business of any point between Buffalo, Rochester and Pittsburgh.

The Mt. Jewett, Kinzua and Riterville was practically the private road of Elisha K. Kane during his lifetime; after his death it was controlled by the Kane estate through ownership of its outstanding capital stock. Mr. Kane and his associates owned considerable lumber interests in McKean County, and the primary purpose of the railroad was undoubtedly to serve as a means for transporting logs and finished wood products. Subsequently "chemical wood" (small pieces and branches to be converted into charcoal, acetic acid, etc.), glass, and clay products provided much of the traffic.

Mr. Kane and these associates organized and built the several roads in this area, and leased them to the MtJK&R. In this way they secured connections with the Pennsylvania, the Pittsburgh, Shawmut and Northern, the Buffalo, Rochester & Pittsburgh, and the Erie, and at one time had a passenger business. As the natural resources of the area were de-

pleted, the need for the railroad diminished and portions were gradually abandoned. When the Baltimore and Ohio took over the Buffalo, Rochester & Pittsburgh in 1931, they also had to take the remains of the Mt. Jewett, Kinzua and Riterville. At that time the Interstate Commerce Commission allowed them to abandon all except the four miles between Mt. Jewett and Kushequa, and this was abandoned in 1942.

In the Valuation Report of the Interstate Commerce Commission (Docket 629, Mar. 12, 1926), the value for rate-making purposes of the MtJK&R as of June 30, 1917, was found to be \$87,850, and of property, used but not owned (leased lines, etc.) \$256,116, making a grand total of \$343,966. The values of the leased lines at that date were: Mead Run, \$17,500; Kane, \$2,600; Kushequa, \$94,000; Smethport, \$132,500; Keating and Smethport, \$730; Buffalo, Bradford and Kane, \$6,500.

The Mt. Jewett, Kinzua and Riterville Railroad Co. was incorporated in Pennsylvania on Apr. 27, 1889, and organized on the same date, with a capital stock of \$80,000, to build a 3-ft. gauge road northward out of Mt. Jewett, to reach the sawmill near Kushequa owned by Elisha Kent Kane. The road was completed between Mt. Jewett and Doyle's (Camp Halsey) (5 miles) and opened for operation before the end of the year. Its eastern terminus was called Gaffney, being the upper end of the village of Kushequa where the Gaffney interests had some chemical works. It passed through Kushequa, where the office was located. Kushequa, in the valley of Kinzua Creek, is about 300 ft. lower than Mt. Jewett, which is on the Big Level, hence a tortuous route of ascent was necessary. At some time before the end of 1892 the road was widened to standard gauge. The cost of the road and equipment was given as \$25,000. It reported one locomotive and 5 cars.

The officers and directors, all of Kushequa, were as follows:

Pres.	Elisha K. Kane
Treas.	Thos. L. Kane
Supt.	T. M. McClellan
	J. D. Brooder
	Joshua Davis
	D. T. Hall

Elisha Kent Kane, son of Thomas L. and nephew of the Arctic explorer, for whom he was named, was born in Germantown on Nov. 25, 1856. He was graduated as a civil engineer from Princeton in 1878; there were three in the class. His first railroad connection was as an engineer on the Big Level and Kinzua in 1879. He became president of this road in 1881; he was likewise president of the paper road, Big Level and Bradford at the same time. He laid out many county roads, operated sawmills, and was otherwise extremely active in the Kane area. He died Feb. 18, 1935.

Elisha Kane dominated the railroad companies, of which he was president, most of the directors being members of the office force in his employ. The others were close relatives.

J. D. Brooder and Joshua Davis were financial magnates of Kane. Brooder was of Irish, and Davis of Welsh descent. Davis, the pioneer of business and banking interests, came to Kane in 1865, and was so successful that he was president of the Board of Trade in the last of the '90's.

The first road acquired by the Mt. Jewett, Kinzua and Riterville was the Kinzua Hemlock Railroad Co., which on June 30, 1891, was leased for a term of 99 years, effective Jan. 1, 1892. The MtJK&R had financed the construction of this road, which extended westerly from Camp Halsey to Westline, and increased the mileage operated to 21.75. This lease was terminated on Dec. 12, 1904; the Kinzua Hemlock was subsequently leased to the Valley Railroad (Bulletin 80, pp. 83).

The Mead Run Railroad, between Mt. Jewett and So. Branch, was next acquired in 1897-8. Construction to Last Camp and Evano opened up new areas, so extensive that the supply of lumber was not depleted for a decade. At this time, Thos. L. Kane was secretary, Zella E. Kane,* treasurer, and A. B. Cody, auditor, and the road's 4 locomotives and 52 cars were said to belong to the leased lines. At this time the South Branch Railroad Co. had trackage rights (about 125 ft.) between the Mt. Jewett tannery and the Erie RR. The rental was as follows: \$250 the first year; \$1,100 per year for the next 4 years; and \$500 annually thereafter. The South Branch was abandoned in 1905.

The Mt. Jewett next expanded to the east, by means of leases in 1898-99, of the Kushequa Railroad Co., (Gaffney's to McKean's and beyond) and of the Smethport Railroad Co. (McKean's to Smethport). The short Kane Railroad Co. (0.33 mi. in Mt. Jewett, between the Mead Run and the B&O crossing) was similarly acquired. (This B&O crossing was the Pittsburgh and Western narrow gauge line to Foxburg).

In 1900, Miss Nettie C. Cody was the secretary, and there were three new directors: R. B. Cody, Miss LeJune Kepler, and C. D. Lamb. In 1905 the secretary was G. C. Burch, and new directors were M. A. Madison and D. F. Parrish. Other directors appeared for short periods from time to time; these included J. W. Galnae, M. C. Critchlow, F. S. Osmundson, and Evan O'Neill Kane, Jr.

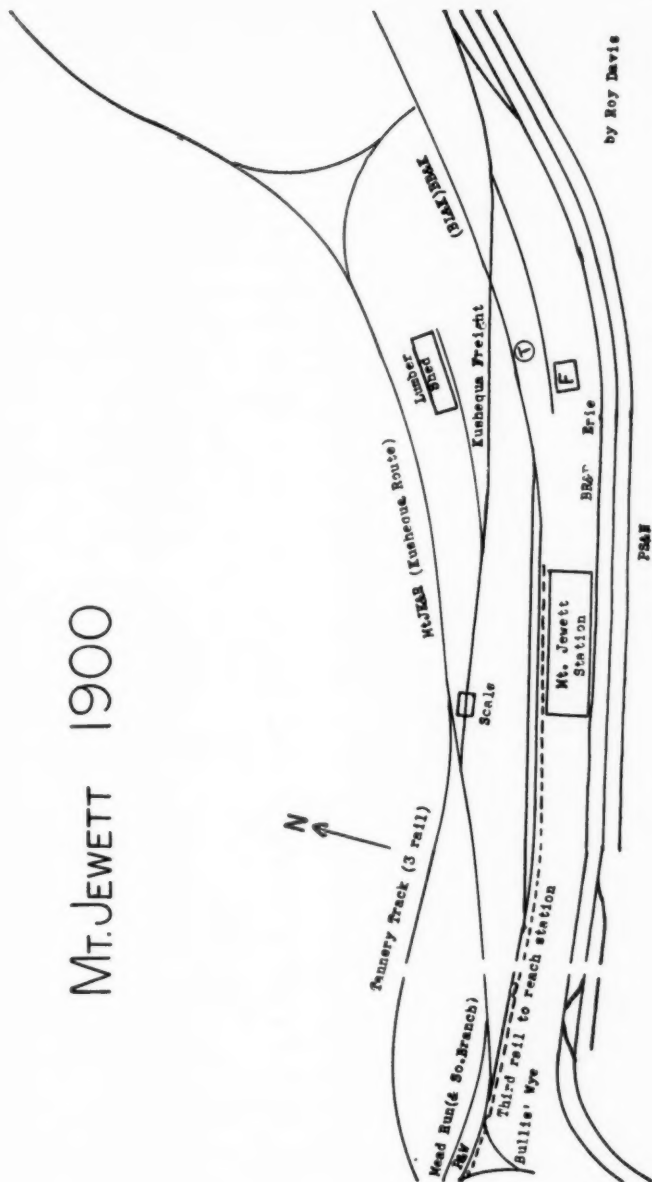
The 2.5 miles of road between Camp Halsey and Gaffney's was sold by the MtJK&R to the Kushequa RR. in 1903, in lieu of unpaid rent, at an agreed price of \$30,000.

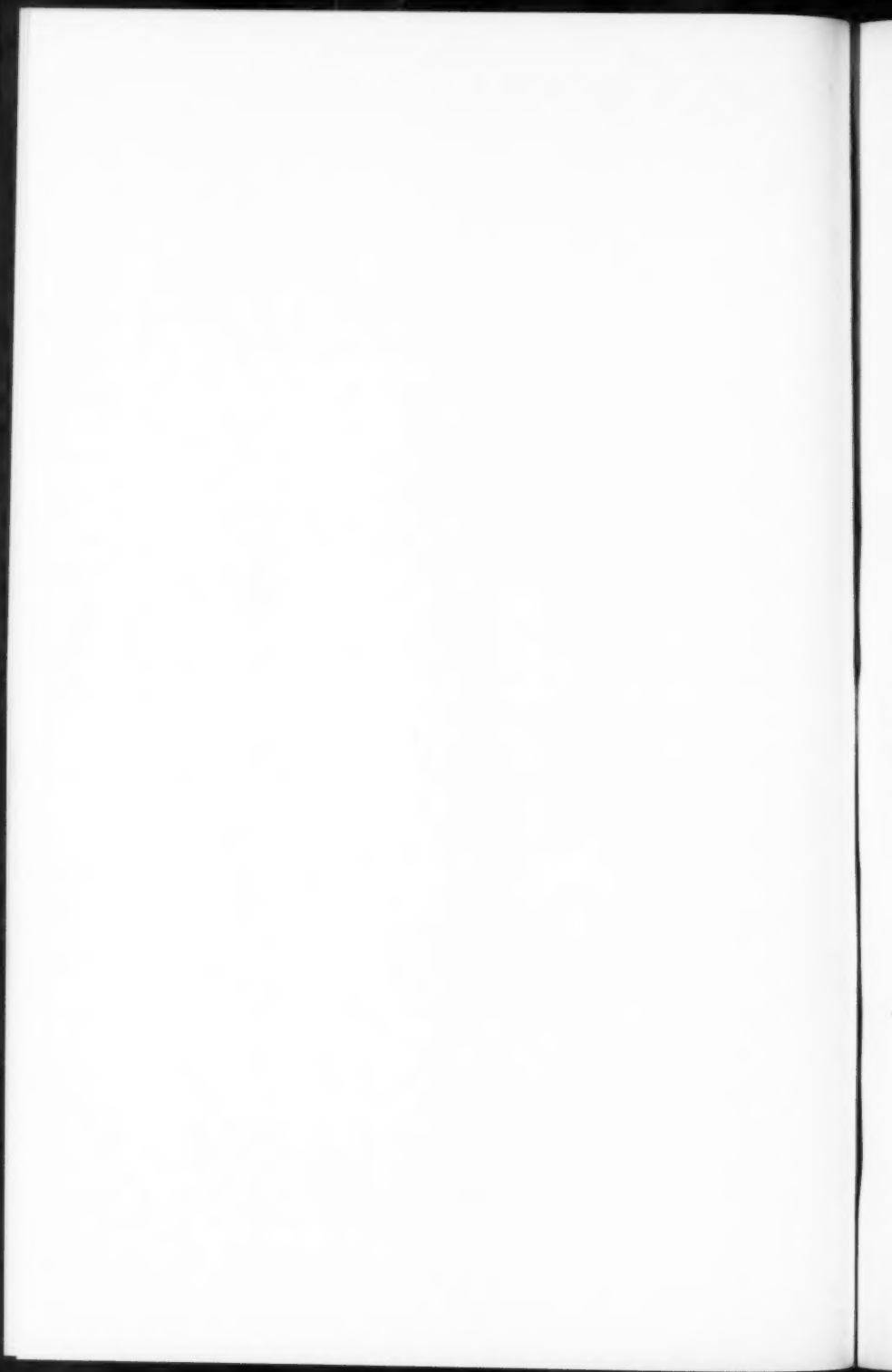
The early history, prior to 1901, was an encouraging one of small surpluses, but thereafter annual deficits, of the order of \$20,000 annually, were incurred. The deficits were provided for by increasing the indebtedness, which was annually outlawed by the statute of limitations. The only small deficit was in 1922 (\$1,902). By 1920, the total deficit had grown to the figure of \$322,957. The aggregate operating expenses were from 95 to 99% of the railway operating revenues.

The small Keating and Smethport switching railroad in Smethport was operated in close connection with the MtJK&R, beginning in 1905

* Zella E. Kane was Zella E. Hayes, the bookkeeper, who married her employer, Elisha K. Kane. Her real name was Griselda.

Mt. JEWETT 1900





when Elisha K. Kane became the treasurer and general manager. This small road had leased a mile of the abandoned Buffalo, Bradford and Kane. On Aug. 8, 1911, the MtJK&R leased the K&S, including the BB&K. In 1913 they had trackage rights over the Pennsylvania RR. from E. Smethport to Larabee.

In 1911, when C. D. Lamb had become auditor, the official Railway Guide listed the timetable shown herewith. Trains ran between E. Smethport and Mt. Jewett, daily except Sunday. In later years, after passenger service was abandoned, freight trains ran only on rainy days; this was on account of the fire hazard, owing to the slash left from lumbering operations. Connections were made with the Pennsylvania at E. Smethport; the Pittsburg, Shawmut and Northern at Smethport; the BR&P at Newton (Backus); the Valley RR at Kushequa; while at Mt. Jewett it connected with the Erie, BR&P, PS&N, and the Big Level and Kinzua.

In 1931 the Baltimore and Ohio Railroad applied to the Interstate Commerce Commission for authority to acquire control of the MtJK&R, by purchase of its capital stock for \$58,709, in accordance with the agreement made in connection with the acquisition of the Buffalo, Rochester & Pittsburgh Ry. Co. The road then totaled 24 miles, but the B&O proposed to operate only the 4.11 miles between Mt. Jewett and Kushequa, and to abandon the remainder. In Sept. the Interstate Commerce Commission authorized the B&O to acquire control of the MtJK&R, by purchase of the capital stock, and under an operating agreement dated Nov. 1, 1932. The company was to acquire that part of the Kushequa RR. extending from a connection with its line extending from Kushequa to certain industries. The Kushequa was authorized to abandon that part of its line from Kushequa to McKean's (6.8 mi.); the Smethport RR of its line from McKean's to E. Smethport (8.5 mi.); the Buffalo, Bradford and Kane of its line in Smethport (0.9 mi.); the Keating and Smethport of its 0.2 mi. line in Smethport; the Kane RR of its 0.3 mi. line in Mt. Jewett; the Mead Run RR of its line, then extending 2.8 miles from Mt. Jewett to Evano; and the Mt. Jewett, Kinzua and Riterville was authorized to abandon operation of these lines.

The accompanying layout shows the tracks at Mt. Jewett as they were in 1900, except that the west end is greatly shortened (indicated by the break in the tracks) and Bullis' Wye was not built until 1906. The BL&K ended one-half mile west of the present station. (This point is not shown; the original Erie station there was also used by the Pittsburg & Western). T is the BL&K water tank. The BR&P was single track at that time.

Trains on the MtJK&R came down from Kushequa, joined the BB&K west of the station, to which they were then backed up by means of a third rail, laid outside the narrow gauge. For several years there was a third rail to Kushequa, so that the MtJK&R could handle the narrow gauge cars of the BB&K. The Kushequa freight track, which crossed to BB&K at grade, extended to the east beyond the sketch, where there were two tracks, Kane No. 1 and No. 2, for interchange with the Erie and with the BR&P.

J&B Jet., also out of the sketch and to the right, was moved 600 ft. further east of its original location, when the automatic block system was installed (about 1917).

Mr. Caverly recalls the time when there were 24 passenger trains a day reaching Mt. Jewett—8 each on the BB&K and MtJK&R, 6 on the BR&P, and 2 on the PS&N. There were also excursion trains run by the BR&P and the Erie to bring sightseers from as far away as Binghamton to see the famous Kinzua Bridge (Bulletin 76, pp. 50) and the Autumn Leaf Specials of the BR&P. Now there are but 6 passenger trains per day, all on the ex-BR&P; the other lines, except as noted, have been abandoned and torn up. Even on this line, many of the old stations appear only on the employees' timetables.

Mr. Maxwell J. Moore of Bradford has recorded his recollections of the Kane family:

"In the early 1850's Mr. Thomas L. Kane, brother of Elisha Kent Kane, the Arctic explorer, acquired a large tract of timber land in the northwest of McKean County and established the town of Kane. During the Civil War he requested permission to recruit a regiment in McKean Co. This was readily granted. In time he had the required number of men signed up and marched them to a point on the west branch of the Susquehanna (Cameron Cty.) where they built rafts and floated to Harrisburg, Pa. There they were inducted into the Federal Army and were known as the Bucktail Regiment, as each man was required to wear a bucktail in his cap. At this time, Mr. Kane was made a general. This regiment took a very active part in the war with great honor to themselves and their general.

"The General had left at home three sons, Evan O'Neill, Elisha Kent, and Thomas Leiper. Doctor Evan O'Neill, in time, became a great surgeon. He acquired fame when in the presence of many other surgeons he performed a successful operation on himself by removing his own appendix. He was a fine man as well as a great surgeon. Thomas L. was also a doctor, but less interested in the profession, so he devoted his energy to the oil and gas business. He was little known outside of his own community.

"Elisha K. built a large sawmill (at Kushequa) in Kinzua Valley about one mile below the Kinzua Bridge where he operated for many years. He sold his firstclass hemlock for \$7.50 per 1000 board ft. and pine of same grade for \$14.00 per 1000 board ft. He built a railroad from Kushequa (name of his town) to Mt. Jewett, a distance of about four miles, to connect with other lines, and to get his lumber to markets. (This line was named the Mt. Jewett, Kinzua and Riterville Railroad). After a time he also built a line from Kushequa to Smethport (15 miles), passing under the Kinzua Bridge. He was the sole owner and president, and he operated it for many years as a freight and passenger carrier.

"The Kane family were all brilliant, and highly individualistic, a trait running through the whole family which, I believe, extended back for several generations, and still exists to the present time. In connection with this I might add that his railroad from Kushequa to Smethport ran through what at one time had been virgin forest, but, as the timber

had been cut over several years before, the land became a fire hazard both spring and fall. To take care of this hazard Mr. Kane gave orders that his trains would operate on wet days only. He was hard put to find the proper word to use as to whether it should be *wet* or *moist* but wet prevailed.

"Evan O'Neill and Elisha Kent were both very warm personal friends, whom I cherished to the end. They both passed away many years ago but I can't give you the dates."

In 1928 the Kane family (heirs of Gen. Thomas L., the founder) owned nearly all the unimproved or vacant land in the borough of Kane, as well as a number of valuable residences and other property, and extensive tracts outside. A restriction required by the Kanes in selling land in the borough was to the effect that the property must not be used at any time for the sale or manufacture of intoxicating beverages. Elisha Kane never allowed his railroad to transport any sort of liquor, until compelled to do so by the Interstate Commerce Commission.

It has proved practically impossible to obtain data on locomotives of the Kushequa Route. In the various Poor's Manuals it is reported that the locomotives all belong to the leased roads. The records of the Lima Locomotive Works show that at one time the MtJK&R had one Class 70-3 truck Shay locomotive, Shop No. 872, which was originally built for the Central Pennsylvania Lumber Co., and shipped in 1904. This locomotive had three 12x15" cylinders and 36" diameter drivers. Mr. Collum has pictures of locomotives numbered as follows: 2, "Ed Belany" (a Shay); 4 (4-4-0; ex-PRR); 8 (4-6-0); 9 (2-8-0); 13 "Theodore Roosevelt" (4-6-0; this looks very much like a Baldwin, but that company could find no record of a sale to the MtJK&R). Mr. Granville Thomas has a photograph showing No. 3, a 0-4-4. When markings are visible, these locomotives are lettered "Kushequa Route" on the tender.

Our member, S. R. Wood, of Stillwater, Okla., reports that a 2-8-0, Baldwin Constr. No. 11516, Jan., 1891, built for the Birmingham, Sheffield & Tennessee as their No. 16 (20x24, 50") went to the Kinzua Hemlock, and then to the MtJK&R. Possibly this is the No. 9.

MEAD RUN

The Mead Run Railroad Co. was chartered under the laws of Pennsylvania on Apr. 30, 1897, to build a standard gauge road between Mt. Jewett and South Branch, a distance of 3 miles. The funds for its construction were advanced by the president, Elisha K. Kane, and repaid by the capital stock (\$45,950). The officers, all of Kushequa, were as follows:

Pres.	Elisha K. Kane
Sect.	Miss LeJune Kepler
Treas.	Z. E. Kane

In 1905 the secretary was G. C. Burch.

The road was opened in 1897 and 1898. It was leased to the Mt. Jewett, Kinzua and Riterville in 1898 for a period of 20 years. The

rental was 50% of the freight earnings of the road, all other earnings going to the lessee.

The lease was replaced by a new one, dated Jan. 1, 1903, which could be terminated on 30 days' notice by either party; the rental was now 20% on the cost of equipment, plus \$1,500. For the year ending June 30, 1904, the rental amounted to \$3,071, to give an example. A later lease, dated July 1, 1907, was for an indefinite period, and likewise terminable on 30 days' notice. By this the lessee agreed to maintain and operate the road, in consideration of its gross earnings. The road owned 20 cars, 10 each of flat and logging. The office was at Kushequa.

The road was rapidly extended westerly into the lumber country, reaching S&J Camp in 1899. Its farthest west point was Last Camp, 9.39 (or 11)* miles from Mt. Jewett. In 1907 only the four miles between Mt. Jewett and Evano was reported to be in operation. This portion still remained when the Mead Run was abandoned in 1931.

The South Branch RR had 2.33 miles of trackage rights over the Mead Run. The rental was \$1,100 per year for 1898-1900 incl., and \$500 annually thereafter.

The stations on the Mead Run RR were 0.0, Mt. Jewett; 3.0, So. Branch Jet. (see note under So. Branch RR); 4.0, Evano; 7.0, Garnet; 9.0, Tielkane; 11.0, Last Camp.

KINZUA HEMLOCK

The Kinzua Hemlock Railroad Co. was organized on Dec. 12, 1890, to build a standard gauge road between Camp Halsey, the western terminus of the MtJK&R RR, and Westline, a distance of 8.5 miles.* Construction was completed in 1891, and financed by the MtJK&R. On the 15th of December the Kinzua Hemlock was leased for 99 years from Jan. 1, 1892, to the Mt. Jewett, Kinzua and Riterville Railroad Co., for three-eighths of the net earnings of both roads. As of June 30, 1894, the capital stock was listed as \$112,100, and the cost of road equipment to that date was \$120,772. The road owned 4 locomotives and 32 cars. The officers were those of the MtJK&R and the office was at Kushequa.

The lease to the MtJK&R was terminated on Dec. 12, 1904 and it was leased thereafter* to the Valley RR. The officers were now those of the latter road. Mr. Kane sold the Kinzua Hemlock to E. L. Day, of the Valley RR.

The stations on the Kinzua Hemlock were, from east to west: 0.0, Camp Halsey; 2.5, Guffey; 3.5, Tally-Ho; 4.5, Olivedale; 8.5, Westline. Although the timetable indicates a connection with the Pennsylvania (ex KV) at Westline, the stations were about a quarter of a mile apart.

* The distances given in the time table and ICC Valuation report do not agree.

* Elisha Kane had a sawmill at Westline and used this railroad to get his lumber out to Kushequa.

* In some of Poor's Manuals the year is given as 1902. However, under the Valley RR in the 1911 Poor's, it states definitely that the Valley RR leased the Kinzua Hemlock on July 1, 1905; in the Annual Reports of the Secretary of Internal Affairs (of Penna.) for 1903-4, it states definitely that the Kinzua Hemlock was operated by the MtJK&R, hence 1904 seems to be the correct date.

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KUSHEQUA ROUTE.

MT. JEWETT, KINZUA & RITERTVILLE RAILROAD,
KUSHEQUA RAILROAD AND SMETHPORT RAILROAD.

ELISHA K. KANE, President.
Z. D. KANE, Treasurer.
C. D. LAMB, Auditor.

J. A. MCKINNON,
General Freight & Passenger Agt.
H. W. MARTIN, Superintendent.

General Offices—Kushequa, Pa.

9	7	5	3	1	Ms	August 8, 1911.	2	4	6	8	10
.....	.....	A M	.....	.....	.....	LEAVE	[ARRIVE	A M	.....	.....	P M
.....	.....	10 50	.....	.....	.....	.....	Larabee ¹	9 42	.....	.....	6 44
.....	.....	10 56	.....	.....	.....	.....	Coryville.....	9 38	.....	.....	6 38
.....	.....	11 05	.....	.....	.....	.....	Farmers Valley..	9 31	.....	.....	6 29
.....	.....	11 17	.....	.....	.....	.....	Penn. R.R. Station	9 22	A M	.....	6 17
† 4 02	.....	11 19	.....	.....	.....	.....	East Smethport..	9 19	10 08	.....	8 46
4 06	.....	11 22	.....	.....	.....	.....	Mechanic Street..	9 16	10 05	.....	8 42
4 08	P M	11 25	A M	A M	.....	.....	ar. Smethport ² lv.	9 15	10 03	.....	8 40
5 10	† 2 30	11 54	† 9 10	† 7 50	0	.....	lv. Smethport ar.	8 55	10 03	12 49	8 40
5 28	2 48	12 06	9 28	8 08	6	.....	Ormsby.....	8 33	9 46	12 32	8 21
5 31	2 52	12 10	9 31	8 11	7	.....	McKeans.....	8 30	9 43	12 29	8 17
5 35	2 56	12 14	9 35	8 15	8	.....	arr. Newton ³ lve.	† 8 27	† 9 40	† 12 25	† 8 12
.....	.....	.....	.....	.....	.....	.....	(B. R. & P. Ry.)	.....	.....	.....	.....
6 15	3 30	.....	10 10	.....	.....	.....	arr. Bradford lve.	† 7 45	.....	† 12 40	.....
6 02	P M	12 37	A M	8 40	.....	.....	arr. Mt. Jewett lve.	A M	† 9 28	A M	† 2 44
P M	.....	12 35	.....	A M	8	.....	lv. Newton arr.	8 27	A M	.....	P M
.....	.....	12 47	.....	.....	13	.....	Viaduct.....	7 35	.....	.....	.....
.....	.....	12 51	.....	.....	14	.....	Gaffney.....	7 30	.....	.....	.....
.....	.....	1 00	.....	.....	15	.....	Kushequa ⁴	† 7 25	.....	.....	.....
.....	15	P M	.....	.....	.....	.....	ARRIVE	[LEAVE	A M	14	.....
.....	P M	P M	.....	.....	.....	.....	LEAVE	[ARRIVE	.....	P M	.....
.....	† 4 55	† 2 15	.....	.....	15	.....	Kushequa.....	.....	3 30	.....	6 25
.....	5 15	2 35	.....	.....	16	.....	Mt. Jewett ⁵.....	.....	† 3 15	.....	† 6 10
.....	P M	P M	.....	.....	.....	.....	ARRIVE	[LEAVE	.....	P M	.....

Additional Train—Leaves Larabee † 6 49 p.m., arrives Smethport 7 20 p.m.

Trains marked † run daily, except Sunday.
STANDARD—Eastern time.

CONNECTIONS.

- ¹ and ² With Pennsylvania and Pittsburg, Shawmut & Northern R.Rs.
- ³ With Buffalo, Rochester & Pittsburg Ry.
- ⁴ With Valley R.R.
- ⁵ With Erie R.R., Buffalo, Rochester & Pittsburgh Ry. and Big Level & Kinzua R.R.

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KUSHEQUA ROUTE.
MT. JEWETT, KINZUA & RITERTVILLE RAILROAD.
KUSHEQUA RAILROAD AND SMETHPORT RAILROAD.

ELISHA K. KANE, President. THOS. E. MOULTON, Superintendent.
D. F. PARISH, Gen. Pas. Agent. Z. E. KANE, Treasurer.
THOMAS WHITTON, Trav. Fht. Agt. R. B. CODY, Auditor.
General Offices—Kushequa, Pa.

January 5, 1902.									
7	5	3	1	Ms	2	4	6	8	8
P.M.	P.M.	A.M.	A.M.	LEAVE	[ARRIVE	A.M.	P.M.	P.M.	P.M.
15 20	12 35	10 00	17 55	0	Smethport ¹	8 47	1 05	3 43	8 15
5 30	2 44	9 10	8 04	3	Rockledge	8 38	12 54	3 25	8 07
5 37	2 55	9 21	8 12	6	Ormsby	8 41	12 46	3 11	6 57
5 40	2 58	9 26	8 14	7	McKeans ²	8 28	12 43	3 08	6 53
5 43	3 01	9 28	8 18	8	Newton ³ lve.	8 25	12 40	3 05	6 50
					(B. R. & P. Ry.)				
6 10	3 35	Noon		arr.	Bradford lve.		12 10		
P.M.	P.M.	12 55		arr.	Mt. Jewett lve.	Noon	12 41	15 25	
5 50		9 35		8 lve.	Newton arr.	8 25	12 00	2 20	P.M.
				10	Sandstone				
				12	Alton Road				
6 10		9 55		13	Viaduct		11 35	1 55	
6 12		9 58		14	Gaffney		11 32	1 52	
6 15		10 00		15 arr.	Kushequa lve.	7 30	11 30	1 50	
6 32				20	Guffey		7 08		
6 35				21	Tally-Ho		7 03		
6 38				22	Olivevale		6 59		
6 50	15		13	26	Westline ⁴		6 50		18
P.M.	P.M.		A.M.		[LEAVE	A.M.			P.M.
					ARRIVE				
15 00	10 15	7 45	15	lve.	Kushequa arr.	11 15	1 20	6 00	
5 15	10 30	8 00	18		Mt. Jewett ¹	12 10	1 05	15 40	
					(B. R. & K. Ry.)		A.M.		P.M.
6 10	12 20	9 45		arr.	Kane lve.		6 10		14 00
					(B. R. & P. Ry.)				
	Noon	A.M.		arr.	Bradford lve.		12 10		
6 10		A.M.		arr.	Ridgway lve.		A.M.	14 03	
				8 15	South Branch Junc.		10 50	P.M.	
				8 25	Evano		10 35		
				8 40	Garnet		10 20		
				9 10	Tielkane		9 55		
				9 20	Last Camp		9 30		
				A.M.	ARRIVE		[LEAVE	A.M.	

† Daily, except Sunday.

Eastern time.

Connections.—¹With B. B. & K. Ry. and P. S. & N. R.R. ²With B. B. & K. Ry. ³With B. R. & P. Ry. ⁴With Erie R.R., B. R. & P. Ry. and B. B. & K. Ry. ⁵With Penna. R.R.

Mt. J. K. & R. time table of 1902 showing the Mead Run.

SOUTH BRANCH

The South Branch Railroad Co. was organized on May 5, 1897, to build a standard gauge road between South Branch Jet. and Jury, a distance of 5.67 miles, in the interests of the Rich Lumber Co.

The officers and directors, all of Granere, Pa., were as follows:

Pres.	Herbert C. Rich
Vice-pres.	Horace C. Rich
Sect.	W. F. Andrews
Treas. and Supt.	L. G. Willson
Aud.	E. E. Keith
	F. F. Hinman
	C. R. Rich

The first four officers held similar positions in 1891 on the Keystone RR.

The South Branch had trackage over the Mead Run RR of 2.33 miles between Mt. Jewett and So. Branch Jet. under a contract made in 1897, and over the MtJK&R between the Mt. Jewett tannery and the Erie RR (125 ft.). The rental for the latter was set at \$1150 per year for 1898-1900 incl., and \$500 annually thereafter, while the Mead Run was to get \$250 the first year, \$1150 for the next 4 years, and \$500 per year thereafter.

The timetable for Jan., 1902 is reproduced herewith. Either Mead Run Jet. and South Branch Jet. (on the Mead Run RR) were identical or very close together. On one map the terminus of the road is shown as Wambled. (This was the name of a family in Kane).

The South Branch was reported as abandoned in the 1905 Poor's. At about this date the lumber company failed and went out of business.

KUSHEQUA

The Kushequa * Railroad Co. was chartered under the laws of Pennsylvania on May 3, 1898 with a capital stock of \$150,000 to build a standard gauge road through the logging district north of Mt. Jewett to the Western New York and Pennsylvania at Farmersville (now Farmers Valley). The road was opened from Gaffney's to McKean's (7 mi.) in June, 1899; it was extended to McKeown Hollow (5.61 mi.) in 1900, and from the latter to Langdon Brook (4.16 mi.) in 1902.*

The Kushequa also built several short branches; one connected with the BR&P at Newton and served for interchange of passengers, mail and express. The smaller line crossed the BR&P near Ormsby by means of an underpass. It crossed the BB&K at McKean's at grade; the Cole Creek branch, as the eastern part of the Kushequa was locally known, started here. The Kushequa (and a part of the MtJK&R) was a com-

* It is said that Kushequa was an Indian name, meaning black water.

* These mileages are from the contemporary Poor's Manuals. The Valuation Report of the Interstate Commerce Commission is slightly different; Gaffney's to Backus (6.7 mi.) in 1898; Backus to Farmers Valley (9.8 mi.) in 1899-1900. Branch lines totaled 5.75 mi.

petitor of the 3-ft. Big Level and Kinzua from Mt. Jewett to Ormsby. At its greatest extent, it totaled 25.90 miles, reaching from Camp Halsey to Shawmut Crossing near Farmers Valley. At this point Mr. Kane laid a piece of track across the highway to the WNY&P, but there was a gap of a mile or more between it and the end of the Kushequa that was never built in. The Pittsburgh, Shawmut and Northern crossed the unused piece of track by securing an injunction against E. K. Kane; this effectually prevented a physical connection with the WNY&P.

The officers, all of Kushequa, were as follows:

Pres.	Elisha K. Kane
Sect.	Miss Nettie C. Cody
Treas.	Z. E. Kane
Aud.	R. B. Cody

G. C. Burch was secretary in 1905. The office was in Kushequa. The funds for the construction of the Kushequa were advanced by the president and repaid with the capital stock.

The following excerpts are taken from a letter written by Elisha K. Kane on July 19, 1913: "From E. Smethport to Larabee, however, we have temporary trackage rights from the PRR . . . Ormsby is on a public road which runs almost straight from Mt. Alton through Backus to Ormsby, and the distance from Backus to Ormsby and Mt. Alton respectively are about equal. It is one-third of a mile from our Ormsby station to the center of the little town of that name . . . excepting for post office purposes, nobody ever speaks of Backus; everyone speaking of the place as Newton or Newton Jct. The village of Newton is about one-fourth mile from the railroad, but Backus P. O. is actually in the railroad station itself. Our station termed McKeans is located at the sharp turn in our road . . . it is the point from which people go to the village of Simpson at which Cyclone post office is located. The latter is only 1½ mi. from Gifford and fully 2 miles from McKeans. Our road is absolutely straight from the crossing of the BR&P to McKeans . . . the curve halfway between Kushequa and Mt. Jewett—might be called a horseshoe . . . The curve (west of) Smethport is a very complete horseshoe of almost equal magnitude with the one on the BR&P below Bingham station (Droney's). There are no houses at Boyer (on the BR&P; at one time there was a large glass plant here. CFHA); it is the point at which the people of Marvindale and elsewhere in the populous Marvin Valley take the trains."

The Kushequa RR. was leased from Nov., 1898, to the MtJK&R for a period of 6 years, at a rental of 12% a year on the cost of the road and equipment. This lease was replaced by one for an indefinite period dated Jan. 1, 1903, and terminable on 30 days' notice. The rental was a stipulated annual payment equal to 20% on the value of the equipment of the lessor, and 20% of the net profit.

The Kushequa RR. was always operated by the Mt. Jewett, Kinzua and Riterville. In 1903 the latter sold the 2.5 miles of road, which included a wye, between Camp Halsey and Gaffney's to the Kushequa, in

lieu of unpaid rental, at an agreed price of \$30,000. About 1910 the Kushequa appears to have sold the 1.5 miles between Camp Halsey and Kushequa to the Valley RR (Bulletin 80, pp. 83).

The Kushequa RR. seemed to prosper until about 1914; by 1915 all the Cole Creek branch had been abandoned. The segment from Kushequa to McKean's (6.8 mi.) was abandoned in 1931, only the small sidetracks in Kushequa, connecting the MtJK&R with certain industries were kept in operation, and these were discontinued when the parent road was closed in 1942.

SMETHPORT

The Smethport Railroad Co. was incorporated and organized under the laws of Pennsylvania on Mar. 6, 1899, to build a standard gauge line between Smethport and McKean's (Ormsby Jet.), a distance of 7 miles. The capital stock was given as \$72,000 in the contemporary Poor's Manuals, but the Interstate Commerce Commission Valuation Report listed it as \$90,000. The road was built by Messrs. G. A. Gocella, of Falls Creek, and W. A. Moore, of Dubois, and opened in 1899. Funds for its construction were advanced by its president, Elisha K. Kane, and repaid by capital stock.

The president and directors were:

Pres. Elisha K. Kane
 Judge J. W. Bouton, of Smethport
 Miss Nettie C. Cody, of Kushequa
 R. B. Cody, of Kushequa
 M. E. Foster, of Kushequa
 C. D. Lamb, of Kushequa

Throughout its entire life, except for a small portion in Smethport which was operated by the Keating and Smethport from 1900-1911, the property of the Smethport RR was operated by the Mt. Jewett, Kinzua and Riterville. On Jan. 1, 1903, it was leased to the latter, the lease being terminable on 30 days' notice. It was again leased on Aug. 8, 1911 for an indefinite period, subject to 30 days' notice. The rental was a stipulated annual payment equal to 20% on the value of the equipment of the lessor, and 20% of the net profit.

The Smethport RR paralleled the contemporary 3-ft. Bradford, Bordell and Kinzua; in the timetable for 1902 it is noted that the two roads have a connection for passengers at McKean's.

The Smethport RR was abandoned with the other roads in 1931.

KANE

The Kane RR Co. was chartered on Apr. 3, 1899, with a capital stock of \$10,400 to build a road between Kane and the MtJK&R in Mt. Jewett (11 mi.) Actual construction, however, amounted only to the short line (0.33 mi.) in Mt. Jewett from Mead Run to the B&O crossing (Kane Crossing). The road was constructed the same year. The funds for its construction were advanced by the president, Elisha K. Kane, and repaid by the capital stock.

The officers and directors, all of Kushequa, were as follows:

Pres.	E. K. Kane
Sect.	T. S. Kane
Treas.	Z. E. Kane
	N. C. Cody
	Joshua Davis
	B. N. McCoy
	H. W. Sweely

There were frequent changes as with the MtJK&R; e.g., G. C. Burch was sect. and C. D. Lamb, auditor, in 1910. The office was at Kushequa.

The entire property was always operated under lease by the MtJK&R; it was leased to the latter for an indefinite period, from Sept. 1, 1903, terminable on 30 days' notice by either party. The lessee received all earnings and paid the cost of operations and maintenance.

Mr. Evan O'Neill Kane, Jr., recalls that his father, Elisha Kent Kane, laid rails at every point where the projected Kane RR was expected to cross the highway between Mt. Jewett and Kane, and that these crossings were an inconvenience for many years.

KEATING AND SMETHPORT

The Keating and Smethport Railroad Co. was incorporated under the laws of Pennsylvania and organized on Aug. 21, 1899, with a capital stock of \$10,000 to build a road not over 5 miles long, from a point on the Western New York and Pennsylvania (PRR) to the Pittsburg, Shawmut and Northern in the borough of Smethport. This object was realized, however, by the acquisition of an already-built standard gauge switching line in Smethport. This line was owned by the Smethport Extract Co.; it extended between the PRR track in E. Smethport and McKean's Mill, and was 0.8 mile in length.

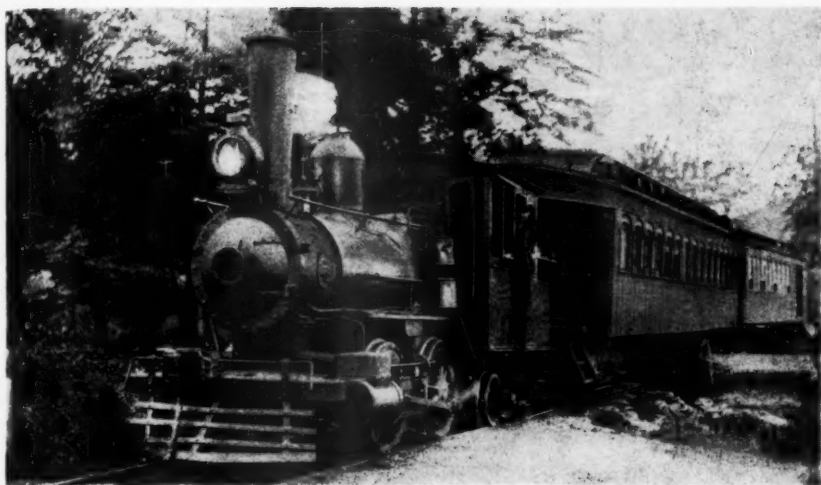
The officers and directors were as follows:

Pres.	C. A. Backer, of Melrose, Mass.
Sect.-treas.-aud.	Z. U. Weisz, of E. Smethport
Genl. Mgr.	J. E. Rooney, of E. Smethport
	Fred D. Gallup, of Smethport
	W. D. Gallup, of Smethport
	Robert Osgood, of Salem, Mass.

The records prior to June 30, 1908 appear to have been lost, but a few conclusions may be drawn from data appearing in Poor's Manuals. The road owned one locomotive. On June 30, 1904, it reported net earnings of \$36.

The K&S had new officers in 1905, the important position of treasurer being held by Elisha K. Kane of the MtJK&R.

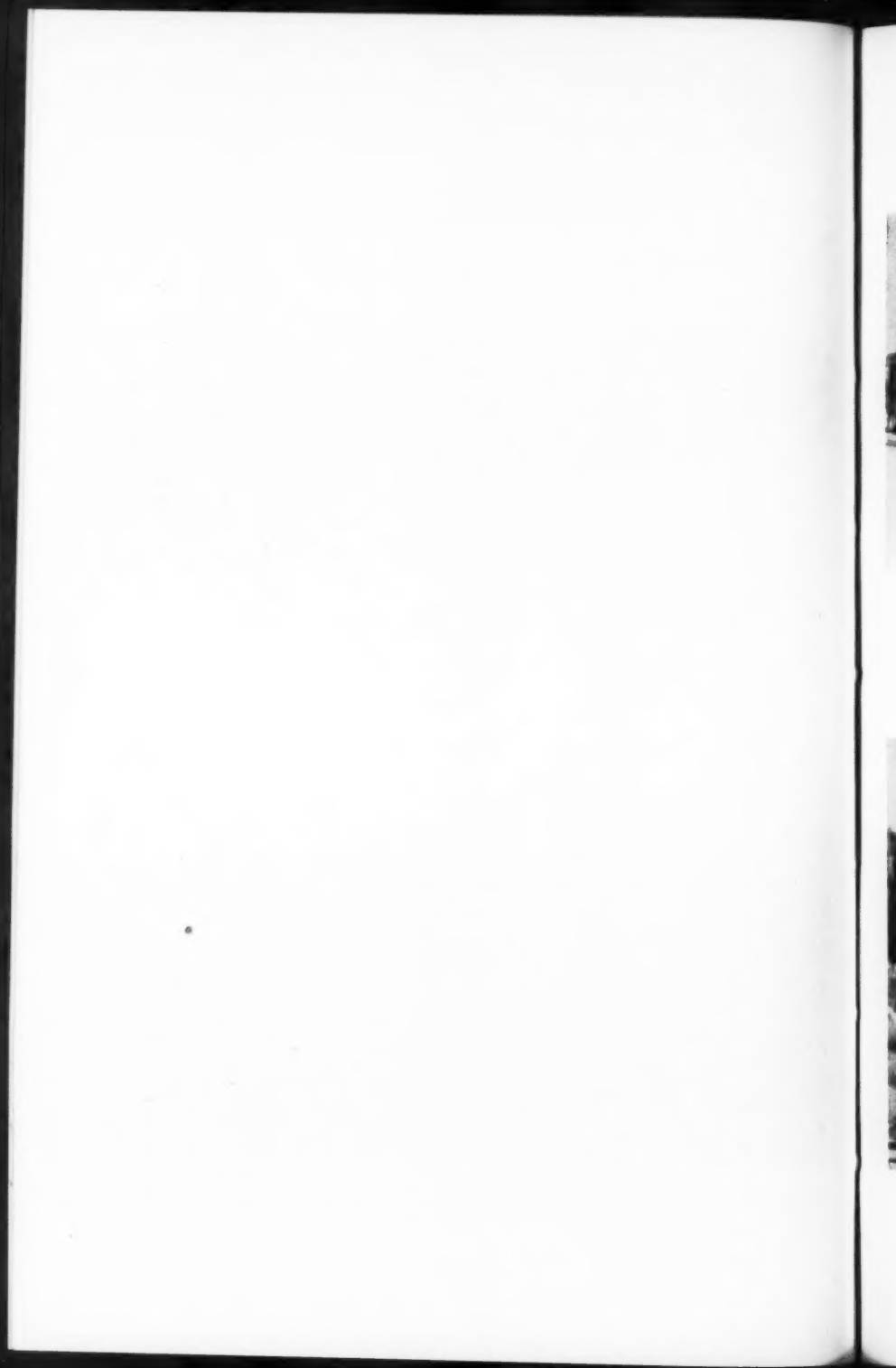
Pres.	Fred D. Gallup, of Smethport
Sect.	C. H. Gleason
Treas. and Genl. Mgr.	E. K. Kane, of Kushequa
	V. B. Bouton
	Guy H. McCoy



Courtesy of Granville Thomas.
 "The Merry Widow" Mt. J. K. & R. Locomotive #3 0-4-4.



Courtesy of C. L. Collom.
 Mt. J. K. & R. #2. Shay Geared Locomotive and Log Train.





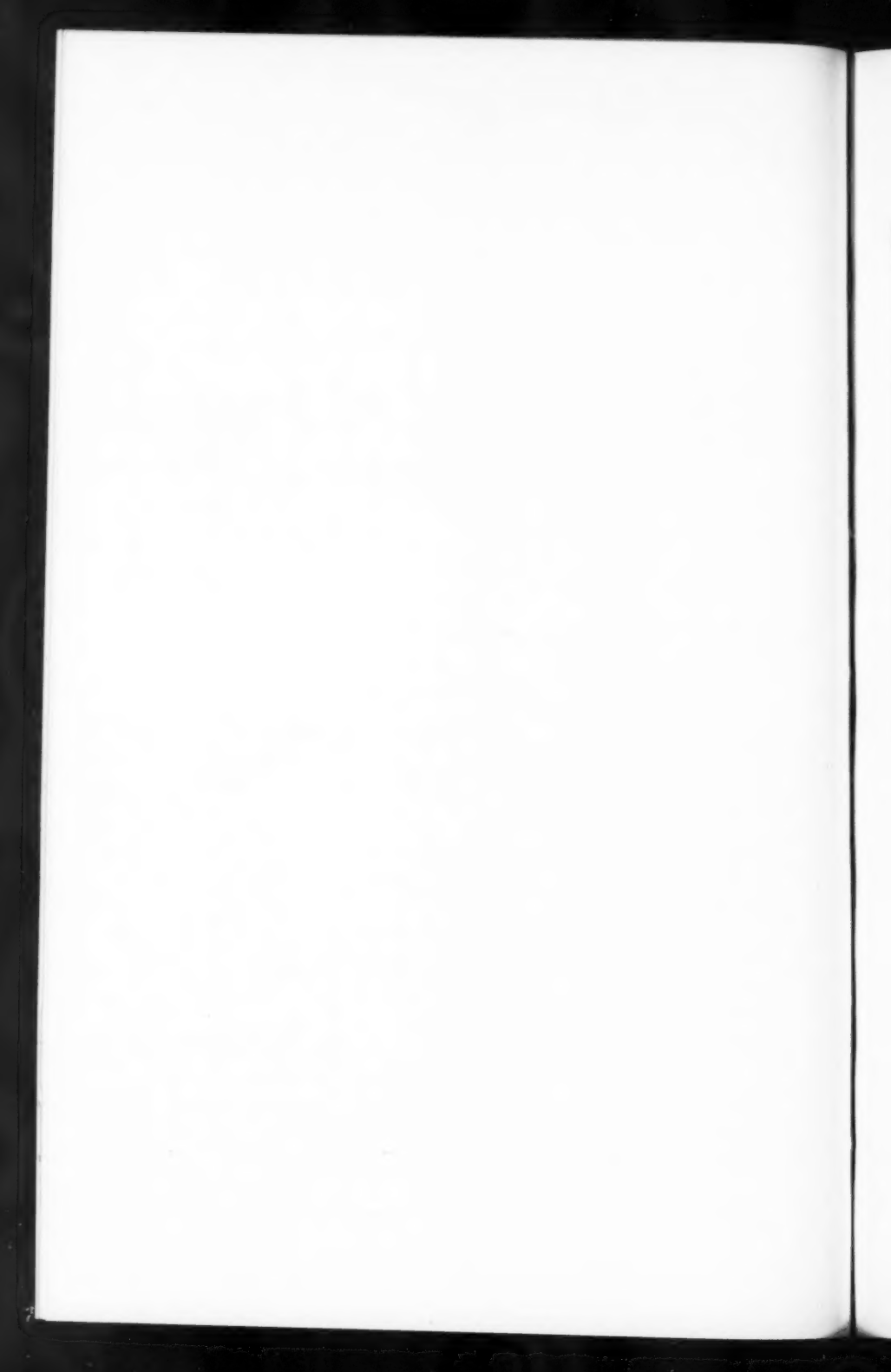
Mt. J. K. & R. #9.

Courtesy of C. L. Collom.



Mt. J. K. & R. #13.

Courtesy of C. L. Collom.



SOUTH BRANCH RAILROAD.

HERBERT C. RICH, President.

C. R. RICH, Gen. Freight Agent.

HORACE C. RICH, Gen. Manager.

W. F. ANDREWS, Secretary.

L. G. WILLSON, Superintendent.

E. E. KERTH, Auditor.

General Offices—Granere, Pa.

.....	3	1	Mls	January, 1902.	Mls	2	4	2
.....	P M	A M	LEAVE]	[ARRIVE	A M	Noon
.....	†120	†8 55	0	Mount Jewett †...	8	8 00	12 45
.....	130	9 05	3Mead Run Junction..	5	7 40	12 25
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.....	4 35	6	Shadeland.....	2	5 30
.....	4 50	8	Jury	0	†5 10
.....	P M	ARRIVE]	[LEAVE	P M

† Daily, except Sunday.

STANDARD—Eastern time.

Connections.—† With Erie R.R., Buffalo, Rochester & Pittsburgh R.R. and Bradford, Bordell & Kinzua Ry.

In 1913, H. W. Martin was secretary, and C. M. Stedwell was auditor; both came from Kushequa. Mr. Gallup was E. K. Kane's lawyer. He was very much interested in the Pittsburgh and Western and in the Mt. Jewett and Smethport (a predecessor of the PS&N). The settlement at Gallup was named for him.

Because of their failure to complete their connection with the WNY&P at Farmers Valley (Bulletin 80, pp. 83), the MtJK&R became interested in the Keating and Smethport, since it would provide a crossing over the PS&N, and a connection with the WNY&P in E. Smethport. When the 3-ft. Buffalo, Bradford and Kane ceased to operate, as of Jan. 11, 1905, the Keating and Smethport had leased about a mile (including sidings) of their narrow gauge line between E. Smethport and Smethport. The Keating and Smethport now totaled 1.5 miles, and had two gauges of track.

According to Mr. Davis, after the BR&P bought the BB&K in 1906 (Bulletin 78, pp. 77) Mr. Kane purchased the Smethport end. The PS&N had a grade crossing over the 3-ft. BB&K at Smethport. In order to get to the PRR, Mr. Kane built a ferry car having narrow gauge trucks, with a standard gauge track on top. "He would run his cars upon it, shove it across the Shawmut, and unload them on his own switch to the PRR at E. Smethport, using a little engine formerly belonging to the New York City Elevated Ry. He would also receive cars from the PRR in that way. There were always court battles, and at times it kept us busy dodging the sheriff and his subpoena, to avoid spending days at court as possible witnesses." Mr. E. O'N. Kane, Jr. noted: "a great deal of litigation was involved in this connection. Mr. F. D. Gallup was father's attorney." "The BB&K was older than the PS&N, so could not be displaced."

A contemporary New York paper, the "Portville Autograph" for Jan. 27, 1904, gives a more detailed account of Mr. Kane's purchase. "Through a deal made with S. S. Bullis who recently bought the BB&K from the Goodyears, Elisha K. Kane has traded the Big Level road between Ormsby and Mt. Jewett to Mr. Bullis for the BB&K Smethport branch running from Ormsby to Smethport. This puts Mr. Kane in possession of all the business from Bradford to Smethport and from Kane to Smethport. The big level running from Ormsby to Mt. Jewett, belonged to Mr. Kane and when he cut the lease off from the BB&K they were cut off from running their trains from Bradford to Kane, which was the valuable end. The deal restores the Bradford line to the BB&K, and gives Kane full swing at Smethport. Mr. Kane also gets a crossing over the Shawmut at Smethport for which a hundred thousand dollars has been spent by the Shawmut to prevent. This crossing is a narrow gauge one, but he will probably apply to the courts for a standard gauge crossing. Before he made this deal he had the BB&K to fight for his first crossing before he came to the Shawmut. This will in all, likely be more fun for the Italians who have fought two bloody battles over this crossing."

So it appears that Mr. Kane eventually got the best of the Shawmut, though he never was able to widen the gauge.

A 1902 issue of the "Bolivar Breeze" gives this account of one of the battles. "There was a small railroad war at Smethport on Tuesday morning last week between the employees of the Shawmut Line and a crew of Italians in the employ of E. K. Kane's Kushequa Route. About one o'clock Tuesday morning the Shawmut Line force went to work on a switch across land owned by Kane to connect their line with the glass works and put them in line to receive a share of the freight. At daylight this work was well under way and soon the Kane forces appeared and the air was full of rocks, pick handles, and Italian swear words. Several of the men were injured, but none seriously. A truce was agreed on and the matter was referred to Judge Morrison for adjustment. The Shawmut Line is still uncompleted but what was built had not been disturbed."

The K&S operated the leased BB&K until Aug. 8, 1911, when a new lease to the Mt. Jewett, Kinzua and Riterville was drawn up on the same terms as those to the K&S. This change was necessary because on Aug. 8, 1911, the Keating and Smethport was leased for 10 years to the Mt. Jewett, Kinzua and Riterville; the lease was terminable on 30 days' notice by either party. The lessee received 40% of the gross earnings plus \$125. per month for operating the road. The lease seems to have been subsequently renewed, but no record of this has been found. The entire capital stock came into the hands of the Kane estate, which held ownership on the date of abandonment.

In 1924 Evan O'Neill Kane, Jr., the son of Elisha Kent Kane, was president of the K&S, and also a director of the MtJK&R.

The Keating and Smethport was abandoned, with the other roads, in 1931. The Shawmut crossing was then sold to the PS&N.

The Memphis Branch of the Louisville & Nashville Railroad (1850-1871)

By G. W. LINDSAY

The first definite steps taken by the Louisville & Nashville R. R. to put its lines into Memphis began on March 5, 1850. On this date the legislature of the State of Kentucky granted a charter which provided that a branch would leave the Louisville-Nashville main line at a point five miles south of Bowling Green, Ky.; (later known as Memphis Junction) and extend southwest to Memphis via Clarksville, Tenn. It is interesting to see how closely the present line of the L. & N. follows this first proposed route in light of the fact that several other routes were strongly favored.

Following up the interest awakened by this charter permission, the citizens of Memphis held a meeting the following year (November 26, 1851), sponsored by the Memphis Enquirer, to consider the building of a line of railroad from Memphis to Nashville instead of the Memphis-Louisville line. From this meeting, and the discussion it engendered, came the chartering of the NASHVILLE & TENNESSEE R. R. on February 4, 1852. The N. & T. received permission to build a railroad from Memphis to Paris, Tenn., a distance of 130 miles, with the idea of connecting with a line then building westward from Nashville. Coincidental with these activities at Memphis, the business interests at Louisville were becoming more articulate in their desire that a rail connection to Memphis be by a more direct route than through Nashville. To implement these desires a charter was secured from the Tennessee Legislature on December 5, 1853, for the MEMPHIS & LOUISVILLE AIRLINE R. R. It was proposed to build a line between the two cities "via the most direct route." This is one of the earliest instances of the use of the word "airline" in a railroad's corporate name and for many years thereafter that magic term has served to attract stock buyers to many a road's securities.

Still another group of individuals determined to get into the scramble secured a charter in Tennessee for the Memphis, Clarksville & Louisville R. R. on January 28, 1852. This line was given permission to connect with any railroad which might build south from Louisville or to join the existing line of the L. & N. at Bowling Green, Ky. Similar rights were allowed in the charter secured from the State of Kentucky March 7, 1854.

Now that these various lines had been chartered there was still a great deal of work to be accomplished if the building of the Louisville-Memphis line was to become fact instead of fancy. The NASHVILLE & TENNESSEE R. R., without having done any construction, proceeded to reorganize in 1853 as the MEMPHIS & NASHVILLE R. R. and assumed all rights of the earlier N. & T. charter. Then on January 20, 1854 under an amended charter it changed its name again and became the MEMPHIS & OHIO R. R. This third change of name seemed to imbue the line with added strength, though there is no record that there

was any added capital. At any rate the M. & O. (do not confuse with Mobile & Ohio which operated through some of the same territory) started from Memphis and surveyed a line of railroad northeastward through Shelby, Haywood and Tipton Counties. In addition, a 24-mile branch was planned from Brownsville, Tenn. south to Somerville; there to connect with the branch of the Memphis & Charleston which was already operating from Moscow, Tenn. north to Somerville. Actual construction on the M. & O. began at Memphis August of 1854 and, as funds were scarce, moved slowly. In slightly over a year (November 1, 1855) the line reported 30 miles completed from Memphis northward and in operating condition early in January of 1856. The end of 1856 saw 56 miles in operation and 59 more miles under construction. The M. & O. reached Paris, Tenn. early in 1861 and then had a line 130.6 miles in operation. The drain on its resources that this construction accomplished was such that plans for the branch from Brownsville to Somerville were dropped.

The MEMPHIS, CLARKSVILLE & LOUISVILLE R. R. started its building in a southerly direction from a point on which is now the L. & N. Memphis Branch near Guthrie, Ky. and planned to connect with the Memphis & Ohio at Paris, Tenn. This line was completed late in 1860 after considerable trouble with the crossing of the Cumberland River at Clarksville, Tenn. The various packet boats operating on the Cumberland between Nashville, Tenn. and cities on the Ohio River placed all possible obstacles in the way of bridge construction. All the technicalities of clearances were paraded to cause trouble and delay, and when this failed and construction of the bridge actually began, the river pilots seemed to have peculiar difficulty passing Clarksville without ramming a bridge pier; in most cases the pier came out second best. This trouble was finally overcome by giving the pilots' houses of the steamers a liberal application of railroad sponsored buckshot.

During this construction period the M. & O. and the M. C. & L. received instructions from the Tennessee Legislature that in the interest of expediting construction they should merge, as it was reasoned if fewer lines were engaged in separate attempts to close the Memphis-Louisville gap across the state of Tennessee, that progress would be faster. The legislature passed a resolution directing the merger in 1858. This merger did not appeal to the M. C. & L. as in 1858 the M. & O. still had 24 miles of line to complete and a bridge across the Red River to build. In order to assist in getting this bridge built the legislature ordered the NASHVILLE & NORTHWESTERN R. R. (now N. C. & St. L.) to help. The bridge was to be at McKenzie, Tenn. and would also be used by the N. & N. on their route from Nashville to Union City in the northwest corner of Tennessee. The M. C. & L. was successful in ignoring the merger order until after this construction was completed and thereby saved themselves considerable money.

In order to keep in the running for the Louisville-Memphis line the L. & N. R. R. was also active while the M. & O. and M. C. & L. were building. Work on the L. & N. Memphis Branch was pushed vigorously and a line from Memphis Junction, Ky. (4 miles south of Bowling Green, Ky.) to Guthrie, Ky. was completed August 15, 1860. This gave the

L. & N. a connection with the M. C. & L. at Guthrie and regular operation from Bowling Green, Ky. to Clarksville, Tenn. via L. & N.-M. C. & L. was begun on September 24, 1860. This 64 mile run was made in 3½ hours over track laid with 54 lb. rail, only fourteen miles of which had full ballast. With this operation the only remaining obstacle to through operation from Memphis to Louisville via M. & O.-M. C. & L.-L. & N. was the lack of a bridge over the Tennessee River at Danville, Tenn. This bridge was finished by the M. C. & L. early in 1861 and through operation began on April 14th of that year. This was just two days after the attack on Ft. Sumter, S. C. and a most unfortunate event for the future of the lines. Service at that time was by two through trains each twenty-four hours, with connections for Nashville leaving the main line at Bowling Green, Ky. This service came to an abrupt end on September 18, 1861 when the Memphis Branch of the L. & N. from Guthrie, Ky. to Memphis Jet., Ky. and the main line from the Kentucky-Tennessee state line north of Lebanon Jet., Ky. were seized by Federal troops under orders from Gen. Buckner.

The war years did no good to any of the lines giving the Memphis-Louisville service, and although the war ended in 1865, it was not until August 13, 1866 that the M. & O. and the M. C. & L. were able to resume service. They were both in very bad shape as to condition of roadbed; and the rolling stock and motive power if any worse would have been unusable. So thin was the revenue, and so tough the operating conditions that they could soon see that the Memphis-Louisville service was doomed unless they received help from the L. & N. This line had fared better than any other southern line during the war as most of its trackage at the time of the war was in territory controlled by Federal troops and well enough guarded so that its properties suffered less than other lines. On September 1, 1867, the L. & N. leased the Memphis & Ohio for a period of ten years and followed this up by acquisition through outright purchase in October of 1872.

The M. C. & L. struggled along a bit further without aid than did the M. & O., but stagnation overtook it on February 6, 1868. On this day the employees quit and trains stopped running, and grass began to grow in the tracks. All this for the very good reason that no salaries had been paid for several months. In order to protect its Louisville-Memphis service the L. & N. stepped in and leased the line for ten years from February 17, 1868 and then absorbed it through purchase on September 30, 1871. During the eleven days that the M. C. & L. was not operating, the Memphis-Louisville service was routed via L. & N.-Nashville-N. & N.-McKenzie-L. & N. Thus on September 30, 1871 the much needed and much worked on line was completed under one ownership, that of the L. & N., and has been operated by them over essentially the same route ever since. Today the L. & N. uses the Memphis Union Station for its passenger trains and operates four in each direction every twenty-four hours.

Some Notes on our Early Railroads

By CHAS. E. FISHER

Items relating to our early railroads sometimes appear in unlikely places. In addition to the reports of the individual railroads as well as those published by the different states and commonwealths, are the early books devoted to this subject. But there are other books, in addition to certain works of literature by well known authors such as early guide and travel books and there are always the early newspapers. The railroad was so new and the speed of from 15 to 20 miles an hour so incredible that some of these travellers felt impelled to place their experiences in writing.

I am indebted to one of our members—Mr. Howard F. Greene for two interesting accounts taken from the two acknowledged sources. I think most of our members realize that our first passenger coaches were simply stage coaches mounted on flanged wheels to run on the rails. I don't believe that many of them realized that the Boston & Worcester R. R., as early as 1834, in addition to the above, was using a passenger coach with an aisle down the middle, such as we have used in this country for many years. Neither do I believe that many of our members realize that this same road, as early as 1834 was using a compartment car—a pity there was not a complete description of same. The account of the Rensselaer & Saratoga R. R., together with its coaches should be of interest to all of us. Accounts such as these, with their intimate details are of great value in furnishing us with a good description of early railroading in this country.

TRAVELLING

From The American Popular Library. Conducted by an Association of Gentlemen. Boston: John Allen & Co. 1835.

We cannot give the picture of New England which we wish to give, without exhibiting it as it appears to a traveller. We must, therefore, perform a short journey, asking our reader to accompany us, in order that he may see the interior of our stage-coaches, steam-boats, rail-road cars, hotels, and country taverns; and we cannot select a route more suitable for our purpose than the great thoroughfare between Boston and New York. We should rather say, one of the great thoroughfares, for the great current of travel from the northern to the middle states divides itself at Boston into two portions, one of which passes directly to Providence, and thence, by steam-boats, through the whole length of Long Island Sound; and the other turns into the interior towards Worcester, in the heart of Massachusetts, thence through Connecticut to New Haven, and from that port it passes by water to the great commercial metropolis. We will take the latter of the two routes; it will carry us a little more into the interior, and will keep us a little longer on the journey. It gives us, too, pretty fair specimens of the three great modes of public travelling in our country, the stage-coach, the rail-road, and the steam-boat.

We take our places, then, in the long omnibus, at its stand in the heart of Boston, entering at the door behind, and forcing our passage between the rows of knees, and over the canes, umbrellas, and bundles, which obstruct the way. We are at last fixed, the boy strikes his bell, and we are jolted slowly along over the pavements of Washington street. But I need not stop to describe a ride in an omnibus. It is the same all the world over. There is the same pulling of the bell-rope, the same constant succession of comers and goers, the same crowding and staggering, in coming in, and getting out, and the same curious succession of views presenting itself to the quiet passenger, who sits still in his place and looks through the windows opposite to him into shop after shop, and store after store, as the lumbering vehicle jolts along the street; and low windows, and gay displays of fancy goods, and toyshops, and bookstores and confectioners' and refreshment rooms, glide, like the sliding pictures of a magic lantern, before him, each filled with its own peculiar group, and having its own peculiar expression. A ride in an omnibus is substantially the same, we believe, in every city on the globe.

It is known to all the world, at least to all that part of it which have ever heard of the good city of Boston, that it is situated on a peninsula, with a long neck; and our omnibus is going out in a southerly direction through the street which comes in over the neck, and extends with no interruption, though with many a curve, into the heart of the city. After riding half a mile thus, through a street of shops, we pull the coach-bell opposite the Worcester rail-road office, and dismounting, we find our way among the crowd of travellers who are arriving in hacks and chaises, down to the train of cars, which are standing under their long shed, with the locomotive engine puffing impatiently before them. The engineer's men are busy oiling the wheels and storing the fuel. The captain of the cars is arranging the passengers and securing the baggage in the baggage-house, an edifice on wheels, deserving the name of house quite as much, whether we consider its size or commodiousness, as half of the residences of the Irishmen who have constructed the road. Groups of idlers stand about, staring at the cars and the engine, and watching the movements of the engineer, who seems proud of the high-spirited horse he is to drive. He stands at his post, turning the steam-cocks every now and then with great gravity, to ascertain the condition of his boiler. By and by all is ready. We are seated, with twenty or thirty others, in what might be called a spacious apartment, considering that it is the interior of a coach, with a broad aisle up and down the interior, and stuffed seats on both sides. Or if we choose a snugger box, we take a differently constructed car in another part of the train; it is divided into compartments, one of which we may fill, if we choose, with our own little company. When all is ready the bell gives notice to the engineer. The engine puffs and gives a pull, the whole train starts with a heavy jerk, and then trundles on slowly. The carsmen trot along by the side, securing the doors and hurrying in the tardy passengers, and then leaping up, one after another, and clinging to the steps of the cars; the speed increases, and in a few moments we are rolling on with immense force and velocity over the extensive marsh which in this direction separates

the peninsula of Boston from the main land. We cross roads and bridges, sometimes over marshes and sometimes over water, until we reach the undulating upland, and then fly on, now shooting across a plain, now riding along on a high embankment over a ravine, now winding through a fruitful and luxuriant valley. The horses feeding in the pastures look at us a moment, and then gallop away. Men, women, and children stop to gaze; and the workmen employed in smoothing off and finishing the road (for in America very few great undertakings are yet finished) stop and lean upon their hoe-handles, apparently bracing themselves up by them, as if our velocity made them dizzy.

Before trying the rail-road, the traveller always thinks he shall be afraid; and, in fact, for the first fifteen minutes of the motion, most riders do feel a little pale. When running along at the rate of twenty miles an hour, within six inches of the brink of an embankment twenty feet high, one can hardly help speculating a little on the precise nature of the evolution which would be performed if the train should, by any mistake, get off the track. Then, again, as the course of the cars is so precisely determined, there is no need of waste room when passing near the railing of a bridge, or the perpendicular wall of ragged rocks which forms the side of a cut through a hill. You shoot suddenly along such a wall, apparently within a few inches of it, and that without a moment's warning; for perhaps but an instant before you were high in the air, running upon the top of an embankment; and as you dart by the sharp projecting rocks, which seem almost to rasp the side of the car, you can hardly help thinking what would have become of your head, if by any accident you had happened to be looking out to see where you were going. These feelings are, however, soon over; you begin before long to place confidence in the faithfulness of the wheels in running upon their proper track, and you learn to keep your head in the coach, where it ought to be. The excited imagination becomes calm, and you give yourself up to the intoxicating pleasure produced by the speed of your flight, as you roll along with just enough of irregularity in the motion to make you feel how swift it is. You have, at least, *half* of the pleasure of actual flying; the speed, though not the elevation. You lose, after a very short time, all sense of danger, for there are no tips and slewings and joltings, as in a stage-coach, to remind you perpetually of the possibility of an upset. In travelling, it is not danger, but fear of danger which causes suffering; and when drawn by a moving steam-engine over a couple of rails, at the rate of twenty miles an hour, whatever may be the actual danger itself, you soon lose all fear. Thus we go bowling along *through* hills and *over* valleys, across corn-fields and orchards, and over roads and rivers, now sweeping round a majestic curve and now flying down a long but imperceptible descent, now stopping at a landing place to let some of our passengers hurry out and others hurry in, and now pausing a moment at a stationary boiler to give our copper steed a breathing spell, and refresh him with a drink. He is a temperate animal; keep him warm and give him plenty of water, and he will work for you incessantly, without food or sleep.

Our ride will be more in keeping with the state of things in America if we suppose the rail-road not completed; a supposition which corresponds with the fact at the time I am writing this chapter. As we go on therefore into the interior, we see laborers here and there stationed at their work. Various groups are employed smoothing the road, removing rubbish, making *turnouts*, finishing offices, &c. At length we arrive at the end of the engine's route, and our train is divided into portions of two or three cars each, and to these horses are attached, who move off with them, wondering, probably, at their newly acquired power. The road seems more and more unfinished as we advance. Heaps of *sleepers* and *rails* and *chairs* lie by the sides of the road. We pass bridges without railings, and along the tops of piles, the spaces between which have not been filled up, the horse walking along on one side upon the ground below, or else led round, while the carsmen push the train over. At length we come to a final stop in a long shed, where we are wedged in between two wood-piles, and left to grope our way out as well as we can in the dark; for it is December, and by this time it is dark.

The thirty or forty passengers grope their way, chiefly by feeling, to the tavern near, where the *stages*, as we call them, (for in America we do not always speak English), are ready to convey us to Worcester. It is a dark, rainy night; we crowd into our places, and the driver, who acts in the double capacity of driver and guard, mounts his box, and by a sort of instinct which enables him to dispense entirely with lights, he finds his way over a dozen miles of winding road, through mud and rain. He runs into no ditches nor over any banks, though, as you look out of the coach window, it seems strange how he can avoid them. We pass by cheerful-looking farm-houses all along the road, lights gleaming at the windows with an expression of peace and happiness within. Now and then we stop a moment at a country tavern door while the driver waters his horses, or exchanges one empty mail bag for another at a little post-office; and at length we wheel around a corner into a broad and spacious street, with elegant edifices on each side, brilliantly lighted, or handsome shops, from whose windows and open doors the light beams upon the broad brick side-walks, or upon the stems of the tall trees which overshadow the street. It is Worcester.

LETTERS ABOUT THE HUDSON RIVER AND ITS VICINITY

Written in 1835-1837

By Freeman Hunt

Excerpts from Letter X

Mansion House, Troy,
May 11, 1836.

Yesterday, I took a seat in one of the passage cars, on the new rail road, for Balston. The road now extends to Saratoga, and will, I venture to predict, become the most fashionable route, as indeed it is the most interesting, to the "Springs." The arrangements for carrying passengers are quite extensive. There are twenty-four cars belonging to

the company—at once spacious, elegant, and convenient. They are twenty-four feet in length by eight in breadth, and sufficiently high within for the passengers to stand erect, the whole divided into three apartments; the seats of which are cushioned and backed with crimson morocco, trimmed with coach lace; each apartment is surrounded by moveable panels, thus affording the comforts and facilities of either a close or open carriage, to suit the convenience of the passengers. The outside of the cars is painted of a beautiful fawn colour, with buff shading, painted in "picture panels," with rose, pink, and gold borders, and deep lake shading; the small mouldings of delicate stripes of vermilion and opaque black. Within the panels are "transferred" some of the most splendid productions of the ancient and modern masters, among which are copies from "Leonardo da Vinci," "Horace Vernet," "David," (the celebrated painter to Napoleon,) "Stuart," and many more of the modern school. The whole number of the subjects of the twenty-four cars, cannot fall far short of two hundred, as each car averages from six to ten subjects; among which may be enumerated, several copies from the antique, Napoleon crossing the Alps, the two splendid scenes in Byron's Mazeppa, the Hospital Mount St. Bernard, portraits of most of the distinguished men of our own country, among whom Washington (from Stuart's original) stands conspicuous, the wounded tiger, the avalanche, portraits of distinguished women, views of several of our popular steamboats, the rail road bridge near Philadelphia, and several views in the south. The "*tout ensemble*," is more like a moveable gallery of the fine arts, than like a train of rail road cars. The springs of the cars are of Philadelphia make, and bear evenly. The "journals" are on a new plan, obviating all previous objections. The wheels are of cast iron, with patent rolled iron tire, well annealed and wrought, being put on the car wheel while hot. The cooling of the tire, and the contraction of the iron, render it impossible to deviate from its place. The whole is then turned in a steam lathe by machine tools, thus rendering the circle of the wheel perfect from its centre, which is a great desideratum.

The cars were made in Troy by those famous coach builders, Gilbert, Veazie and Eaton, aided by Mr. Starbuck, a scientific machinist. Connected with the cars are two beautiful locomotives called the "Erie" and the "Champlain."

The rail road bridge, over which the cars cross the Hudson from Troy to Green Island, on their route to the Springs, is certainly a noble, substantial specimen of this kind of architecture. It is one thousand five hundred and twelve feet in length, thirty-four feet in width, and seventeen feet to the eaves. It is supported by stone abutments and piers. The sides are double lattice work, covered with boards on the outside. The floors of plank, and the roof shingled. It has thirty-two sky-lights or scuttles. The roof is supported in the centre by a tier of pillars. The draw on the east end is one hundred and four feet long, twenty-four feet wide, and ten feet high. The side draw is fifty-two feet long and twenty-four feet wide. A cast iron pipe for conveying water from the main pipe of the Troy Water Works Co. extends along under

the roof, the whole length of the bridge. It has sixteen hydrants, one being placed at every other skylight. After crossing this bridge, before reaching the village of Waterford, you pass three bridges besides the main one. The first crosses the Mohawk from Green Island to Vanschaick Island, and is four hundred and eighty-two feet long, the second crosses another sprout of the Mohawk from Vanschaick Island to Hawver Island, and is two hundred and two feet long. Three hundred and sixty feet further north, the third or minor bridge crosses the upper sprout of the Mohawk to Waterford, and is three hundred and twenty-six feet long. On Hawver Island may be seen the remains of an old fort thrown up in the Revolutionary war. On the Troy bridge there is a side walk for foot passengers, the rail road track, and a passage for common carriages. A bridge is shortly to be thrown across the Hudson from Green Island to West Troy, and the miserable horse-boats which now convey travellers across the Hudson will eventually fall into disuse.

The passage over the islands to Waterford, and indeed the whole route to Balston and Saratoga Springs is really delightful. Then, too, the agents on the rail road are civil to the passengers, and attentive to the locomotives. The engineers are experienced, and, although "flying as it were on the wings of the wind," one feels perfectly safe from accident. A few miles above Waterford, we pass on our right Mechanicsville, a flourishing little manufacturing village; and within a mile or two of Bemus' Heights, rendered memorable as the scene of battle.

* * * * *

But to leave the field of action. The distance from Troy to Balston is about twenty-five miles. We left Troy at half past 2, and arrived at Balston at half past 4 P. M. Abating hindrances, the distance is, I am informed, usually performed in an hour and a half.

Another thing that frequently bothers many of us engaged in research—when was such and such a device used and where? Some of these items have been pretty well uncovered but there are still many about which but little is known. Our member, Mr. Sidney Withington has been kind enough to submit photostats of pages from the January 1, 1839 copy of the "American Railroad Journal and Mechanics Magazine" containing a letter and illustration of the well known Wye from one F. B. Holcomb, Assistant Engineer, Central R. R., Washington County, Georgia. The plan, as you all know, was a substitute for the ordinary turn-table and it was highly commended by the editors for its simplicity. Mr. Holcomb's letter was as follows:

"Gentlemen:

Having been led, by the objections attending the running of locomotives backwards, or with their driving wheels in front, to consider some method of turning them and their trains more efficiently than the common turn-table, which only admits of one or two cars being turned at a time, and having devised a plan which would, I think, effect this desirable end, I take the liberty to solicit for it your kind attention.

"That locomotives do not run as well backwards as forwards, will, I think, be readily conceded. That the liability to run off the rails, and that the wear of the driving wheels is much increased, has been proved, upon a road which has come under my observation, beyond the shadow of a doubt.

"The plan would, I think, be found simple and effective. The saving of time and manual labor would, I doubt not, be found to be considerably over the common turning-table, and at the same time it would be found to answer very well the purpose of turnouts at water stations. The preceding diagram will explain the plan in question.

"Let us now suppose the track is laid and provided with switches at the intersections, and a locomotive, with a train of cars behind it, at A. It moves over the first half of the turning track, B, (which is the quarter of a circle) and stops at C, where the track is made straight for 150 or 200 feet, or for the purpose of receiving and discharging freight quite out of the way, the straight line may be extended to any convenient length. The switch is then changed at D, and the locomotive, with its train moves backwards, over the other half of the turning track, E, into the main track at F, thus having been turned completely around.

"That additional room would be required, is true. By adopting, however, a radius of curvature for the turning track of 400 feet, which would be quite sufficient, and making 150 feet at B, straight, the whole distance out from the main trunk would be but 550 feet."

So far as we can learn, it was Gridley Bryant that first used the turntable on the Granite Railway in 1826 and it was through Mr. F. D. Holcomb that the railroad Wye came into use as early as 1838.

Turning now to a more modern subject upon which there has been considerable controversy and doubt—the U. S. R. A. locomotives, let us examine this field for a moment. Some of our younger writers and our popular magazines are not inclined to place proper credit where it is due.

World War I commenced in 1914 but the U. S. A. did not enter the conflict until 1917. During these years our railroads handled a tremendous tonnage but, they were short of rolling stock, both locomotives and freight equipment at the time of our entry into the war. The Wilson Administration decided to take over the railroads and operate them for their owners. Whether this was necessary or not, in view of the wonderful performance our railroads gave during World War II need not be discussed here.

In order to alleviate the locomotive shortage, Mr. A. H. Smith, President of the New York Central R. R. and adviser to Mr. MacAdoo, the Director General, proposed that a large fleet of 2-8-2 type locomotives with an axle load of 55,000 lbs. be built and kept in a pool. If there was a large troop movement through a certain port, some of these engines

could be dispatched to cover this movement or, if there was a big ore movement coming down from the mines, they could cover that. Their axle load and their clearances would permit them to go almost anywhere. Mr. Smith suggested one thousand locomotives be built and, specifications and drawings for this locomotive were drawn up.

At this point, we must go back a few years and recall the fact that during the time E. H. Harriman was in control of both the Union Pacific and Southern Pacific Railroads, standard locomotives for both roads were developed and built. The consensus of opinion, at least by those in charge, was, that a series of designs should be prepared covering the different wheel arrangements with two axle loadings—55,000 and 60,000 lbs. respectively. Because Philadelphia was more accessible to Washington than either Schenectady, N. Y. or Lima, Ohio, space was given the representatives of the three builders in the drawings rooms of the Baldwin Locomotive Works. The designs that originated as the result of these efforts were not due to any one man or builder, they represented the best that the combined efforts of all could produce. That they were well designed and that they have influenced subsequent locomotive construction, no one can question.

The trouble came, not in the design or their construction, but with the railroads themselves. The heavy 2-10-2's on the Boston & Albany gave trouble, jumping the rails, because a five coupled locomotive never should have been sent that road with its sharp curves. That was a fault of assignment, not design. On another New England road, the six 2-8-2's had a cylinder $\frac{1}{2}$ " smaller than the standard 2-8-2's of that road and after the war they would only use them when traffic was heavy, buying new engines of their own standard with the six idle 10 months of the year. A standardized road such as the Pennsylvania tucked their U. S. R. A. locomotives off on the Lines West and their subsidiary roads tho' the U. S. R. A. Mallets, ordered by the Buffalo, Rochester & Pittsburgh saw service east of Pittsburgh. On the other hand, a standardized road such as the New York Central put their 2-8-2's to work on the main line and—they worked them! But on the whole, these U. S. R. A. engines were well received and they made good on the majority of our roads and those that did not like them, instead of running the wheels off them and neglecting their repairs, could have done like the Boston & Albany—they sold their ten 2-10-2's at the first opportunity and these engines, at last accounts, were on the Canadian National Rys.

There were 1853 locomotives built to these designs; 1256 were built by the American Locomotive Co., 445 by the Baldwin Locomotive Works and 152 by the Lima Locomotive Works. They were divided into the following classes:

Light Pacific—4-6-2	81 locomotives
Heavy Pacific—4-6-2	20 locomotives
Light Mountain—4-8-2	47 locomotives
Heavy Mountain—4-8-2	15 locomotives
Light Mikado—2-8-2	627 locomotives
Heavy Mikado—2-8-2	233 locomotives
Light Santa Fe—2-10-2	94 locomotives
Heavy Santa Fe—2-10-2	175 locomotives

Mallet—2-6-6-2	30 locomotives
Mallet—2-8-8-2	101 locomotives
Switcher—0-6-0	255 locomotives
Switcher—0-8-0	175 locomotives
Total	1853 locomotives

The reader will note that the largest number built were of the light 2-8-2 type, thus proving the wisdom of Mr. Smith's proposal. Had his proposition been acceptable to the U. S. R. A., this single type of locomotive could have been constructed much more quickly and at the close of the war bids could have been entertained from such roads as wished to purchase them. On the other hand, let it be distinctly understood that the locomotive builders, working in unison, provided the U. S. R. A. with well designed and well constructed locomotives along the lines they wished and that no one man, builder or railroad can claim credit to these designs.

For the above facts I am indebted to one of the officials, now retired, of one of the locomotive builders, who has requested that his name be withheld. Like the others, he did his share in making this project a success and I'm glad to be able to present the facts of this locomotive standardization during World War I.

The Norris Locomotives

Since the appearance of our Bulletin No. 79 some interesting letters containing additional data have been received. From the author, Mr. Dewhurst, comes the correction that on pp. 20, the figure referred to should be 6 and not 9. Mr. Norrell informs us that prior to the first Norris exported in 1837/8 was one from Gillingham & Winans of Baltimore for the Leipzig-Dresden line, named "Columbus" about 1835/36.

From Mr. Achard we are indebted to the following which enclosed a print of the model locomotive that Norris sent to France:

"I have read with great pleasure the Bulletin No. 79, and I have some comments to the very exhaustive work by Mr. Dewhurst, with whom I have communicated some years before the war.

"There is a slip concerning the Norris-built 4-2-0 for France, or rather two slips. On pp. 47, it is stated that the working model, scale 1:4, in Paris is illustrated in Fig. 14. This statement is incorrect, as you may judge from the enclosed post card, issued by the Conservatoire des Arts & Metiers. Fig. 14 depicts "General Gourgaud," which is precisely the Montpellier-Nîmes locomotive—not the least doubt about it.

"On page 68, it is stated that from the Montpellier-Nîmes Engine, 'no drawing is known.' This statement is contradicted by the fact that this very identical engine is illustrated in Fig. 14.

"The same page gives for this engine 12x18" cylinders. These dimensions have been, maybe, transmitted once by me to Mr. Dewhurst, according to indications which seem doubtful. I have again checked this data, in the light of Appendix 4, and of a very good and accurate reproduction of the drawing (reproduced in Fig. 14). I cannot now, find any support for the cylinder diameter of 12".

"Assuming, otherwise, 4' for the diameter of the driving wheels, I find exactly for the whole length of the boiler 157" or 13', and for the piston stroke, 18". The co-existence of these two figures leads to the conclusion that the engine belongs to Class B, (according to Appendix 4). This data can be added to Appendix 7.

"One remark about the chimney. According to Appendix 7, the diameter should be 10"; according to the drawing, it amounts to 16½". There is however, in the lower part, in front, a sliding door, with a handle, evidently intended to be lifted upwards, for the removal of ashes. It is, therefore, probable that the engine was fitted with a double chimney, the interval between them being intended to receive the ashes thrown downwards by the metallic clothing on top. With the standard diameter of 10" for the inner chimney, deducting ⅛" to 3/16" for the thickness of the sheet, the intermediate annular space would still be more than 3" wide.

"In the matter of the performance of the Norris Engines, I have found in the French State Records, references to some performances in a correspondence dated February, 1841. This correspondence aims at a license for importing into France some locomotives built by Hick and it seems probable that the information came from him, since he was the interested party.

'Five of these engines, in operation since several months on the Birmingham & Gloucester Ry., haul a load of 45 to 50 tons, engine and tender included, on the Lickey Incline' (1 in 37 on a length of 3400 metres.)

'In the United States, they are conveniently used upon difficult inclines, viz

Baltimore to York 1 in 63
Greenville to Roanoke 1 in 56
Philadelphia to Columbia 1 in 14'

'On the latter incline, a locomotive intended for the Vienna-Trieste Ry. handled 31 tons at 15 m.p.h. The same engine has hauled on an incline 1 to 112 a load of — lbs at a speed of 10 m.p.h.'

"In the French State Records is a letter dated Aug. 25th, 1841, to H. M. the King of France, from Mr. Jordan L. Motts, New York. It deals with the application of moisture and sand to the wheels in order to increase the adhesion. A lithograph shows the application of the system to a Baldwin locomotive. The sand, when falling either directly or through a tube, on the rail, meets another tube bringing either steam or preferably water (because of fuel economy)."

From our member in Germany, F. Gaiser, we are indebted for the following:

Berlin-Frankfort—2' A			Class	Constr No.	Road No.	Withdrawn from Service
Berlin	4-2-0	10½x18"	4' B	125	43	1848
Kopenick	4-2-0	10½x18"	4' B	126	44	1848
Frankfurt	4-2-0	10½x18"	4' B	131	45	1866 sold
Posen	4-2-0	10½x18"	4' B	132	46	1866 sold
Brandenburg	4-2-0	10½x18"	4' B	137	47	1850
Schlesien	4-2-0	10½x18"	4' B	138	48	1848
Oder	4-2-0	10½x18"	4' B	145	49	1853
Concordia	4-2-0	12½x20"	4' A X	146	50	1864
Fuerstennvalde	4-2-0	12½x20"	4' A X	147	51	1866
Hamburg	4-2-0	12½x20"	4' A X	152	52	1860
Carl Treu	4-2-0	11½x20"	4' A	153	53	1864
Gwynn	4-2-0	12½x20"	4' A X	154	54	1854
Zimpel	4-2-0	11½x20"	4' A	155	55	1866
Opposition	4-2-0	12½x20"	4' A X	157	56	1864
Spree	4-2-0	11½x20"	4' A	160	57	1866

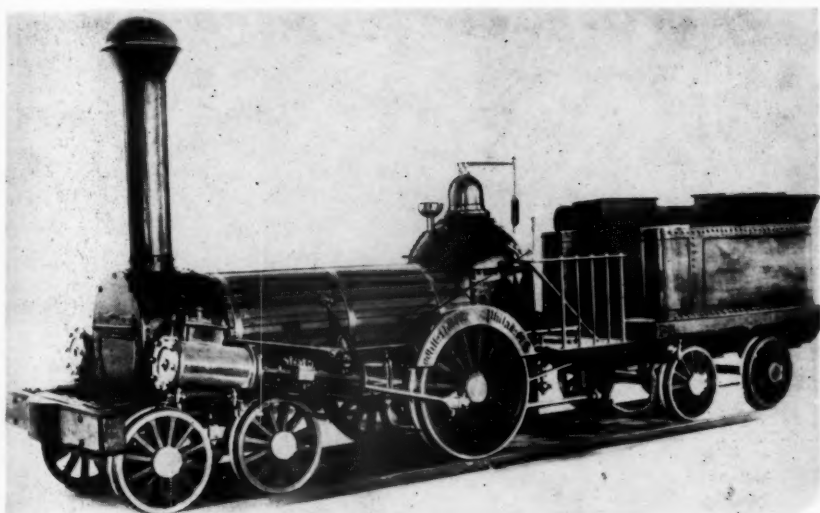
The "Opposition" signifies the feeling towards the American project.

On January 8, 1845 these locomotives went to the Niederschlesisch-Markische E retaining their same road numbers and subsequently, road Nos. 45-46 were sold to the Oldenb St E.

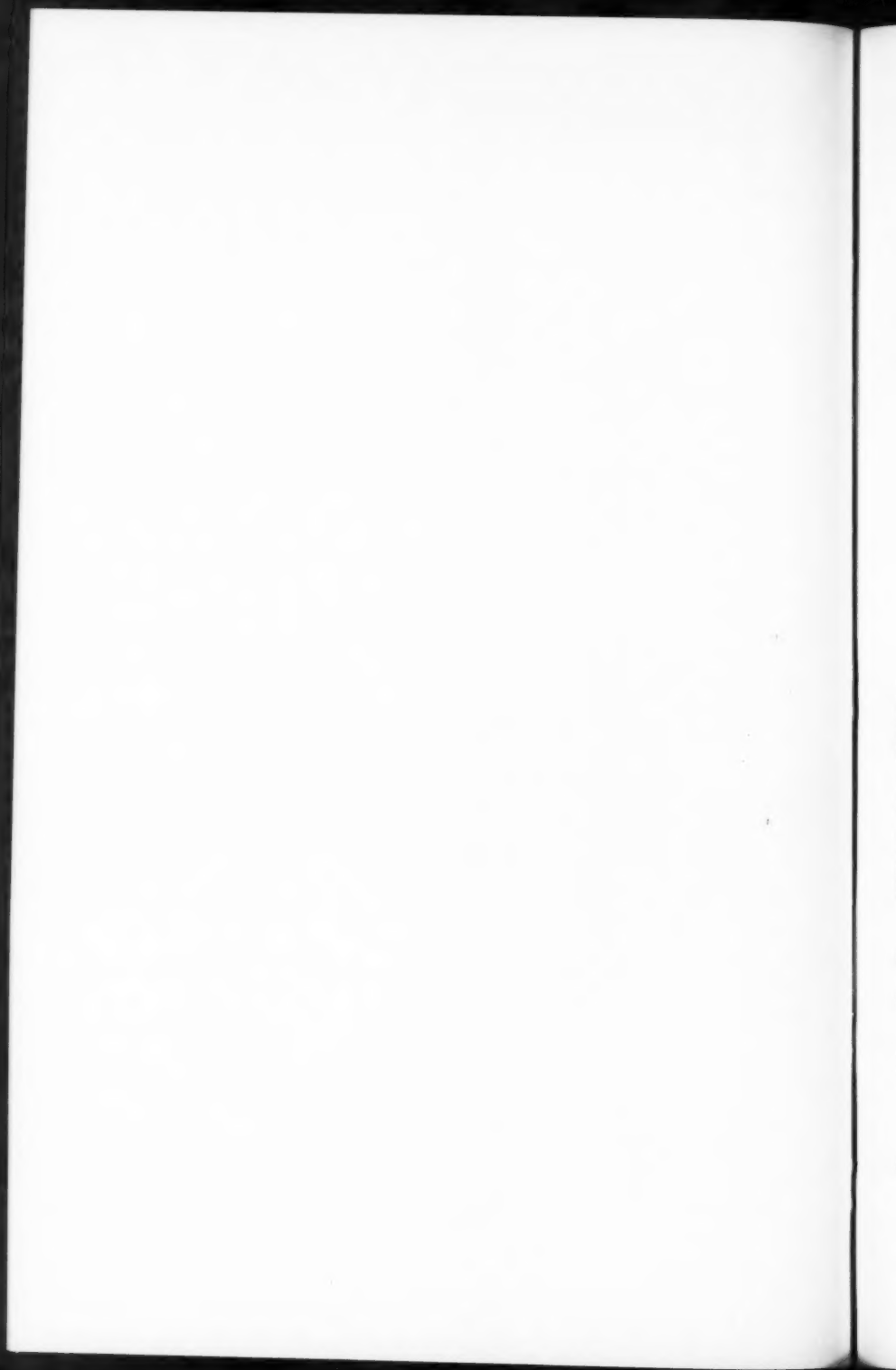
The later engines on the above list, were used on the Berliner Verbindungsbahn, connecting the southern and northern stations with the eastern one and were used for goods (freight) only.

K. Wurttemberg State—2' B

1	Donau	4-4-0	10½x25"	5'	191
2	Fils	4-4-0	10½x25"	5'	192
3	Ja-et	4-4-0	10½x25"	5'	193



The Norris Model in the Conservatoire des Arts & Metiers, Paris.



Appendix 7—line 3—Laxenburg

line 4—The "Baltimore" entered service in January, 1839, therefore it must have been built in 1838.

line 14—Budweis constr No. 171; Teplitz No. 172; Carlsbad No. 174; Eger No. 176.

line 24—Nador

Page 58—The locomotive built in the shops of the Brunswick Ry. had no bogie and entered service in April, 1843, $10\frac{1}{2} \times 18$ 4'.

Jacobi, Haniel & Huyssen, Sterkrade.

Appendix 7—Hannover State long B, Kurfurst Friedrich Wilhelm Nordb (since 1866, Hess. N. B.) not L. B.

Page 59/60—Berg-Mark 2B long C.

61—Hannover State Ry. Nos. 15 & 16 Norris Aug. & Sept. 1846. 2B long C, inclined cylinders, 15×20 4' 8" 15 ser 54; 16 ser 53.

63—K. F. W. Hessian Northern Ry., Hirsch (359); Sababurg (360), Papin and Hercules were all four 2B firebox between axles, 14×22 4' 6". The last two locomotives in 1859 were sold to the Hessische Ludwigsbahn where they were provided with saddle tanks and did the transit traffic at each bank of the river Main until the bridge was built. They were named Landskron (23) and Klopp (24) and in 1863 were renumbered 51 and 52 and in 1869 were sold for 16,000 florins.

Norris also supplied locomotives to Russia.

I have studied the Norris-type engines of the B. M. (Berg-Mark) Ry. intensively. No. 1, Berg and No. 2 Mark seem to have had the coupled axle behind the firebox, for there is a drawing in the first printed report showing a 4-4-0 of this arrangement. All the other Norris-type locomotives of the railway were long boilers, viz

3	Wupper	4-4-0	Cockerill	170	1844	rbld to 2-4-0T in 1862
4	Ruhr	4-4-0	Cockerill	171	1844	rbld to 2-4-0T in 1867
5	Ennepe	4-2-0	Cockerill	173	1844	rbld to 2-4-0 in 1858
6	Volme	4-2-0	Cockerill	174	1844	rbld to 2-4-0 in 1858
7	Elberfeld	4-2-0	Cockerill	175	1844	rbld to 2-4-0 in 1858
8	Dortmund	4-4-0	Cockerill	172	1844	rbld to 2-4-0T in 1862
9	Barmen	4-4-0	(A. Wever	1	1848	rbld to 2-4-0 in 1855
10	Egen	4-4-0	(Burmen	2	1848	rbld to 2-4-0T in 1861

The following railways also had Norris-type engines and were later absorbed by the B. M. Ry.

Dusseldorf-Elberfelder						
8	Mars	4-2-0	Jacobi	H & H 2	1842	
Prinz Wilhelm Ry.						
I-IV		4-4-0	Cockerill	190-193	1847	All were similar to
V		4-4-0	Cockerill	276	1849	B. M. Nos. 3, 4 and 8
VI		4-4-0	Cockerill	285	1850	
VII		4-4-0	Cockerill	286	1852	

We appreciate the kindness and the effort of both Messrs. Achard and Gaiser in sending us this additional information.

New Books

The First Transcontinental Railroad, by John Debo Galloway, 319 pages including index, 9x6, illustrated. Published by the Simmons-Boardman Co., 30 Church St., New York 7, N. Y. Price \$5.00.

The story of the building and the completion of the Central Pacific and Union Pacific Railroads has already been written and told many times and it has been used in the movies as well. It is a story that is always worth recounting for the completion of the railroad to the Pacific Coast bound this country together as no other means of transportation could. Completed a little over eighty years ago and altho' millions of dollars have been spent in grade reduction and elimination of curvature and improvements, the ride over this route today over Sherman Hill, across the Great Salt Lake, through the mountains and around Cape Horn and down into Roseville is still just as interesting and thrilling as it was years ago (and safer).

John Debo Galloway by training and profession was a civil engineer. His hobby was historical research. Combine the two and the product is bound to be worth while. Mr. Galloway believed that the building of these two railroads was "one of the greatest engineering and construction feats of all times" and that it warranted a detailed description. This book, based upon the corporate records of both companies was the result.

Each road merits four full chapters on their promoters and builders, their corporate organization, their location and construction to the driving of the last spike. If this work is to be compared with Sabin's classic—"Building the Pacific Railroad," then Mr. Galloway's work must admittedly be a bit dry in places because of the technical details. The reason seems to be in the viewpoint of the authors. Others impressed the reader with the immense size of the project but Mr. Galloway, because of his connection with the project in the capacity as an engineer and one who was accustomed to the hardships and the toil involved touches on the matters with which he was in close contact—the subsidies granted the railroads, the problems involved by the Chinese and Irish labor, the speed of track laying and the effect winter would have on the construction.

There are two sections of photographs printed in brown ink on coated stock that include a fine cross section of construction scenes, locomotives and cars and men connected with both enterprises. Compared with some of the books recently published on our western railroads, the author has written a valuable documented account of these railroads. It may be a bit dry in places but for reference work in any library it has unquestioned value. The book supplements other publications and these factors make it well worth while.

Tandem Compound Locomotives, by P. M. Kalla-Bishop, 71 pages, 8½x5½, illustrated. Paper covers. Published by Kalla-Bishop Books, 4 Temple Fortune Court, London, N. W. 11, England. Price \$1.25.

The first tandem compound appears to have been designed by Mr. H. O. Perry of the Shepard Iron Works, in New Jersey and was applied,

in 1868, to Erie Ry. No. 122, a 4-4-0 locomotive built by Hinkley & Drury of Boston in 1851. The Erie at that time was a 6' 0" gauge road. The engine was not a success and it was not until Anatole Mallet, a Swiss engineer, working in France in 1876, built his first two-cylinder compound and demonstrated its success.

Henry Dunbar took out a patent on the idea and an engine to his designs was built in 1883 at the Springfield Shops of the Boston & Albany R. R. The No. 100 ran its trials on the level lines out of Boston but, when transferred to the western end of the road, it did no better, if it did as well, as the simple engines and the 1884 roster shows this engine as a simple locomotive.

The tandem compound, with the high pressure cylinders immediately in front of the low pressure cylinders, on each side, with no cylinders or rods between the frames and with all parts accessible, should have walked off with all the honors in this country but it was pushed aside by the Cole and Vauclain systems.

The author follows the tandem compound from its origin on the Erie to the United Kingdom, France, Russia and Bavaria. In the U. S., we have such examples as Great Northern No. 515, 2-8-0 of 1892; Santa Fe No. 999, 2-8-0 of 1898; Baltimore & Ohio No. 1705, 2-8-0 of 1901; Erie No. 1565, 2-8-0 of 1902 and Colorado & Southern No. 520, 2-8-0 of 1903. These are all set forth in the table at the end of this book giving the leading dimensions. Thanks to the ability and ingenuity of John Player, the Santa Fe applied this principle to several types of locomotives with good success.

In a short space, the author has covered this subject in a most complete manner not only with his text but with the eight illustrations and 20 line drawings. It is a good historical review of an application to our steam locomotive and this little book is just that well presented that it should be in the library of any and everyone interested in the development of the steam locomotive.

Legends of the Comstock Lode, by Lucius Beebe and Charles Clegg, 79 pages, 8½x5½, illustrated, bound in cloth. Published by Grahame Hardy Co., 2046 East 14th Street, Oakland 6, Cal. Price \$3.00.

The authors have given up their domicile in the East and are now residents of one of the most colorful sections of the west—Virginia City, Nevada. This book is companion to "Virginia & Truckee" and "U. S. West." Unlike the former, this book is not the story of that interesting little road tho' a chapter is devoted to the Virginia & Truckee R. R. Rather, as the name implies, it is a collection of the incidents (and accidents) of the pioneers and those that came after them in the fabulous days of wealth in Virginia City in the last century.

Like all of the Hardy Books, it is well printed, the artistic touches of our member Mr. E. S. Hammack add unquestioned interest and value and the wealth of illustrations do much to complete the story. If you are interested in the Comstock and the years of its operation you will enjoy this little volume.

Trolley Lines of the Empire State, by Felix E. Reifschneider, 55 pages, 8½x5½, illustrated, bound in paper. Copies may be obtained from the author, P. O. Box 774, Orlando, Florida. Price 75c.

This book covers in much the same way the two previous works of this author reviewed in our Bulletin No. 80 only this includes the city and suburban lines. The author does not attempt to cover the trolley systems of Albany-Troy, Utica, Syracuse, Rochester, Buffalo and New York City, the latter would require a volume for its lines. He has covered the smaller cities and towns of the Empire State and the index at the end enables the reader to find the information he wishes. It has been no easy task to locate this data and the author deserves a lot of credit for his work in this field. In this connection, the author has prepared a map of the Long Island R. R., together with historical notes, mimeographed, price of which is 25c.

Diesel Motor Trains, by Berge and Loftus, 66 pages, 11x8½, illustrated, bound in paper. Copies may be obtained from Northwestern University Bookstore, 434 East Huron St., Chicago 11, Illinois. Price \$1.50 per copy, ten or more copies ordered at the same time, \$1.00 per copy.

To some of our members, anything connected with the diesel motor is repulsive but, whether we like it or not, the diesel is here to stay, for the present at least. This work is a study of the possibilities of an undeveloped (as yet) type of equipment for not only improving the passenger service but to make it more profitable to the railroads. The work is divided into four chapters. The first chapter commences with the steam driven car of the early 1850's on the Concord R. R., takes us through the development of the McKeen Motor Cars; the gas-electric cars to the "Zephyr's" and the light propelled motor cars built after 1940. Chapter II is devoted to the experience on European railways as well as those in other parts of the world. Chapter III covers the Economy of Operation and Chapter IV considers the Problems of Railroad Passenger Service.

This study has been most carefully prepared, tables and statistics with their train costs are given and a new and interesting side is given to the passenger transportation industry. The study ends with the year 1949, prior to the introduction of the Budd diesel rail car but this type of car has possibilities that will be well worth watching in that it seems to provide the solution to some of the passenger problems of the railroads.

A study of this kind is well worth having because it provides one not only with the knowledge of what has gone before but with the present costs and this information is worth having. Probably less is known about the early steam driven cars (dummies they were called on some railroads) than any piece of railroad equipment. Some had the engine and boiler contained in a compartment at one end of the car, others had the regular locomotive with horizontal boiler with one end of the car resting on the tender trucks, in fact the fuel for the engine was carried in the coach. These were a few of the attempts to handle this light passenger traffic profitably of which but little is known save from the few pictures that come to hand.

The authors have done a commendable piece of work, it should be of interest to many of us.

Worth Reading

Compiled by ELIZABETH O. CULLEN, Librarian,

Bureau of Railway Economics, Association of American Railroads,
Washington 6, D. C.

BOOKS AND PAMPHLETS

Addresses—Fifty-Sixth Annual Meeting, Railway Accounting Officers, Ottawa, Canada, August 1-3, 1950. Cover-title, 51 p. Washington 6, D. C., Railway Accounting Officers, Association of American Railroads. Free. pp. 1-5, *Chairman's Address*, by G. F. Glacy, v-p, B&M and MC RRs.; pp. 6-12, *Address* [. . . "freight rates and the freight rate structure . . ."], by Lionel Chevrier, Minister of Transport, Canada; pp. 13-21; *Address*, by Donald Gordon, chmn. and pres., C. N. R. ". . . At joint meetings of this kind it is the traditional custom of speakers, whether American or Canadian, to expatiate upon the similarities that mark the character, habit and outlook of our two peoples . . . I would prefer to make a few comments on the ways in which we differ . . ." (p. 15); pp. 22-28, *Wage Reporting*, by J. Elmer Monroe, asst. v-p. and asst. dir., BRE, AAR. ". . . I should like to point out certain difficulties which have been encountered in making the most effective use of your wage reports, and to suggest some steps which might be taken to make them even more valuable . . ." (p. 26); pp. 29-35, *Waybill Revision in Central Consolidated Revising Bureaus*, by W. H. LeValley, auditor, Freight Accts., NYC; pp. 36-40, *Simplification of Passenger Tariffs and Division Publications*, by H. J. Bearss, asst. gen. auditor, UP; pp. 41-44, *Simplified Methods for Disbursements Accounting*, by R. V. Cole, aud. of disbursements, SP; *Informal Remarks* by R. S. Henry, v-p, AAR, pp. 45-47; Walter J. Kelly, v-p, AAR, pp. 48-49; E. H. Bunnell, v-p, AAR, pp. 50-51.

Air Traffic Forecast 1950-1980—New York-New Jersey Port District, by Airport Planning Bureau, Port of New York Authority, New York 11, N. Y. 5 vols. Basic Data, Bibliography and Index in Vol. 5. Dated June 1950. No price given.

Airline Traffic Survey. Vol. 1. Originations and Destinations (Domestic), March 1949; Vol. 2. Station to Station . . . Survey, Sept., 1948; Vol. 3. Originations and Destinations (Transborder), March 1948, by Air Transport Board, Canada, Ottawa, Canada. ". . . continuation of the series instituted . . . in September, 1946 . . ."

An Analysis of Potential Traffic and Estimated Tolls Claimed for the Proposed Additional Channel in the St. Lawrence, by Traffic Department, Association of American Railroads, Washington 6, D. C. 41 mimeo. 1. *Map showing the Waterways Now Serving the Great Lakes Area and the Principal Steel-Producing Points in the Northeastern States and Eastern Canada*, bet. pp. 11 and 12. Free.

British Transport Commission. Second Annual Report—Statement of Accounts and Statistics for the year ended 31st December 1949. — p. For sale by British Information Services Sales Office, 30 Rocke-

feller Plaza, New York 20, N. Y., \$—. Published by H. M. Stationery Office, London, Eng. Summary (from London) in Wall Street Journal, Sept. 21, 1950, p. 1.

Coras Iompair Eireann. Final Report. 4 p. 4° Dublin, Ireland, Office of the Secretary, Kingsbridge Station. "... for the period 1st January to 31st May 1950." Company dissolved on 1st June 1950, under provisions of Transport Act, 1950, "... and on that date its undertaking was, with the undertaking of the Grand Canal Company, transferred to and invested in a Board named Coras Iompair Eireann established by virtue of the Act, the members of which are appointed by the Government."

The Delaware and Hudson Canal—A History, by Edwin D. LeRoy. 95 p. Illus. Honesdale, Penna., The Wayne County Historical Society. \$2.00. Frontispiece is reprint of poster, dated Bethany, June 30, 1830. *To Adventurers.* Map: *The Gravity Railroads*, p. 63. Railroads, pp. 71-77, 83.

Development of Texas and Pacific Railway, by W. T. Alexander, div. supt., T&P, Big Spring, Texas. 5 mimeo. p. Address at AREA Com. 11 lunch, El Paso, Texas, June 14, 1950. Free on request to B. H. Moore, AAR, 325 Transportation Bldg., Washington 6, D. C.

Early British Railways, by Christian Barman. 40, 16 p. Illus. with reproductions of old prints and drawings. Harmondsworth, Middlesex, England, The Penguin Books Limited. 75 cents.

Fifteen Years under the Railway Labor Act, Amended and the National Board, 1934-1939, by National Mediation Board, 2012 General Services Bldg., Washington 25, D. C., 1950. 92 p.

... *The "Galloping Goose" Line—Most spectacular narrow gauge railroad in America! Offers you your most exciting railroad adventure!* Issued by Rio Grande Southern Railroad, Durango or Ridgway, Colorado. 1 p. with picture of "The Galloping Goose" train at top. An advertisement of excursion and sight-seeing trips in San Juan Basin of South-eastern Colorado—one day round trips; half-day round trips, or special charter trips to see 14000-ft. mountain peaks, trout streams, wildflowers at timberline, and historic gold and silver mines, from June 15 on. "Reservations should be made well in advance." The 1950 issue is practically a "collector's item" now. Write to the RGS at Durango or Ridgway for a copy of the 1951 issue as soon as it is released.

The Iowa Pool—A Study in Railroad Competition, 1870-1884, by Julius Grodinsky. xi, 164 p. Chicago 37, Ill., Univ. of Chicago Press. \$4.00.

Korea. Map, 10x15 inches, showing many more cities, towns, etc., than other maps, "Railroad"; "Railroad reported under construction" and "Road." Insert in *The Military Engineer*, Sept.-Oct. 1950. For sale at 20 cents a copy separately, from *The Military Engineer*, 808 Mills Bldg., Washington 6, D. C.

The Library of the Bureau of Railway Economics, Washington, D. C., by Hollis W. Piatt, librarian, Air Transport Association of America. Cover-title, [1], 26 mimeo. 1. "Reproduced by permission of Department of Library Science, Catholic University" and available on request to BRE Library, Transportation Bldg., Washington 6, D. C.

A Map showing the Network of European Railroads, 1949. 29¼x20 inches. In colors. Specially prepared for and available on request from French National Railroads, 610 Fifth Ave., New York 20, N. Y.

Memoria y Balance correspondientes al Año 1949, by Union Ferroviaria, Argentina. 101 [2] p. Illus. Presented to its General Assembly, Buenos Aires, May 31-June 6, 1950. Proceedings of the 25th General Assembly in its El Obrero Ferroviario, June-July, August 1950.

100th Anniversary 1850-1950. L. & N. . . . Pioneer, Builder, and Public Servant in the Industrial and Agricultural Heart of the South, by Louisville & Nashville Railroad Co., Louisville, Ky. Cover-title [24] p. Illus. Distributed to commemorate L&N centennial, accompanied by package containing calendars and deck of playing cards.

Pan American Railway Congress, 7th, Mexico City, Mexico, October 10-20, 1950. [Proceedings and Regulations]. Regulations translated from Spanish and distributed in U. S. by Office of Executive Secretary, Walter S. Abernathy, U. S. National Commission, Pan American Railway Congress Association, Room 1868-A, Dept. of Commerce Bldg., Washington 25, D. C. Dated July 17, 1950. Proceedings will be summarized in U. S., Mexican, and other American railroad magazines, during the Congress, and printed eventually. For information on obtaining printed proceedings, write Mr. Abernathy.

Report of the Chief Inspector [H. A. Campbell] of the Bureau for the Safe Transportation of Explosives and Other Dangerous Articles, Association of American Railroads, 30 Vesey St., New York 7, N. Y. 28 p. Its B. E. Report No. 43. Price on request to Mr. Campbell. "... No persons were killed or injured due to rail transportation of commercial explosives during 1949, . . . The "inspectors of this Bureau have continued to keep in touch with shippers of explosives of all classes and make periodic inspections of the plants of all explosives manufacturers. They also have conducted their routine inspections and investigations in connection with the handling of other dangerous articles in shippers' plants insofar as such handling may affect safety in transportation. In addition, the inspectors and their headquarters' staff have joined their efforts in investigating accidents to determine their cause and initiate necessary preventive action. In this portion of the work the assistance of the Laboratory staff has been invaluable . . ." (p. 4).

Statistique Internationale des Chemins de Fer—Année, compiled by Union Internationale des Chemins de Fer (U. I. C.), 10 Rue de Prony, Paris XVII, France. Cover-title, 162 p. No price given.

Study of Railroad Motive Power, by Bureau of Transport Economics and Statistics, Interstate Commerce Commission. 298 mimeo. p., Tables, Diags. Statement No. 5025, May 1950. "... It is the primary purpose of this study to bring together data on the costs obtained by the railroads in their use of diesel-electric 1/ as compared with steam locomotives . . . It has seemed desirable to give the nontechnical reader, in chapter V, a brief account of the more important improvements made in the steam locomotive in the past thirty years and of the handicaps of this type of power . . . other types, such as oil-burning or coal-burning gas turbines, are under development. New designs of electric locomotives also are receiving attention and new types of rail motorcars are coming into use.

These developments, along with possible lines of improvement in diesels and aspects of railroad electrification, are discussed briefly in this chapter. There also is mention of some locomotive types formerly in use but now largely discarded."—Introduction, p. 1.

Transportation Conditions and National Transportation Policy . . . — A Series of Statements submitted on behalf of the Railroad Industry at hearings . . . held pursuant to Senate Resolution 50, 81st Congress:

- No. 1. *Introductory Statement*, by J. Carter Fort, v-p and g. c., A. A. R.;
- No. 2. *The Railroad Situation, 1950*, by J. H. Parmelee, v-p, A. A. R.;
- No. 3. *The Competition of Subsidized Commercial Air Transport*, by Sidney S. Alderman, v-p and g. c., S. R. System;
- No. 4. *The Highway Freight Problem*, by David I. Mackie, g. c., D. L. & W.;
- No. 5. *Federal Policy Relating to Inland Waterway Transportation*, by Gregory S. Prince, asst. g. c., A. A. R.;
- No. 6. *Inequalities in, and Inadequacies of, Existing Regulatory Laws*, by W. L. Grubbs, g. c., L. & N.;
- No. 7. *Reorganization of Government Agencies dealing with Transportation*, by J. C. Gibson, v-p and g. c., A. T. & S. F. Ry. System;
- No. 8. *Freight Car Supply and Effective Transportation Capacity*, by William T. Faricy, pres., A. A. R.;
- No. 9. *The Impact of Taxation upon the Railroad Industry*, by Thomas L. Preston, g. s., A. A. R.;
- No. 10. *Railway Labor Legislation*, by Daniel P. Loomis, chmn., A. W. R.;
- No. 11. *The Present-Day Railroad Problem*, by F. G. Gurley, pres., A. T. & S. F. Ry. System;
- No. 12. *Current Problems of the Railroad Industry*, by Champion McD. Davis, pres., A. C. L.;
- No. 13. *Discriminatory Subsidies and Unequal Legislation*, by Roy B. White, pres., B. & O.

Submitted in April, May and July 1950. Eventually the hearings on S. Res. 50 will be printed and all statements will be available to read. Meanwhile copies of those on behalf of the railroad industry are free on request to Association of American Railroads, Transportation Bldg., Washington 6, D. C.

Transportation Lines on the Atlantic, Gulf and Pacific Coasts, 1950, by Board of Engineers for Rivers and Harbors, Corps of Engineers, Department of the Army. Cover-title, 425 p. Transportation Series No. 5. For sale by Superintendent of Documents, Washington 25, D. C. \$2.00.

United States Civil Defense, by National Security Resources Board. VI, 162 p. Its Report to the President of the United States, Sept. 8, 1950. "Railroads" p. 120. NSRB Doc. 128. For sale by Superintendent of Documents, Washington 25, D. C. 25 cents.

A Year Book of J N R Information, by Japanese National Railways, Tokyo. 60 p. Illus. Maps. Free. "A short history of Japanese railways" pp. 2-5.

ARTICLES IN PERIODICALS

A Propos d'un Cinquantenaire—l'Electrification des Lignes de la Banlieue Ouest de Paris, by A. Dagary. *Revue Générale des Chemins de Fer*, August 1950, pp. 357-364. Map. Illustrations show rolling stock on these electrified lines from 1900-1950.

Aesthetics in French Railway Construction. *Railway Gazette*, June 23, 1950, p. 701. "... Far from 'uglifying' the landscape French railway engineers are making a determined effort to harmonize railway works with the surroundings ... the design of many new bridges ... rebuilt since the war ..."

Air Cargo. Law and Contemporary Problems, Duke University, Winter 1950. Symposium including "The Impact of Air Freight on Surface Transportation" by R. S. Henry, v-p, A. A. R.

American Monorail Project, by Harald Olmsted. *The Military Engineer*, May-June 1950, p. 287. Sketch of proposed monorailroad in Los Angeles, Cal. area using park strip along center line of California State freeways.

The Association of American Railroads. *Modern Railroads*, June 1950. Illus. "We have again found it advisable to devote an entire issue to a single subject ... Thirty-two articles tell the full story of what the Association of American railroads really means to the railroads and the nation's economy ..."

Diesel-Electric Locomotive Units in service on Class I Railways—excluding switching & terminal companies—as of December 31, 1949. *Railway Age*, May 27, 1950, p. (1043) 39. "... The following tabulation presents, for the first time, the number of Diesel-electric locomotive units in service on each Class I railroad, arranged according to various horsepower classifications ..."

Electrification of the Norwegian State Railways. *Railway Gazette*, August 11, 1950, pp. 152-154. Illus. and map. With hydro-electric power in a mountainous country without coal.

The Gentle Truckers. *Fortune*, May 1950, pp. 102-106, 134-143. With few bad words and little bellowing, they are moving a fabulous amount of freight.

Is Russian Transport Ready for War? by Mark Strook. *Railway Progress*, September 1950, pp. 2-5.

La Locomotive Electrique Prototype B-B-B 6002, S. N. C. F., by Thomachet and Rossignol. *Revue Générale des Chemins de Fer*, July 1950, pp. 301-317. Illus., Diagr., Charts.

New Looks for Electric Locomotives. *Railway Gazette*, July 14, 1950, p. 33. Suggestion to designers "... It is to the bodywork that we must look to create the admiration that is the right of all locomotives ..."

Proportions of British Locomotives. Pts. 1-2, by E. C. Poultney. *Railway Gazette*, August 18, 25, 1950, pp. 178-180; 209-211, illustrated.

Quick-Change Artist, *The New Yorker*, July 15, 1950, p. 18. William Hayes. "... He has combined the careers of conductor [on New York Central] and bank guard [Union Dime Savings Bank, N. Y. City] for twenty years ..."

Railplanes. 2 mimeo. 1. Transcript of cards in BRE Library for articles describing projects from 1923 to Hastings plan in S. Res. 50 hearings, 1950. Free from BRE Library. Dated May 18, 1950.

Railroad Relocations As Federal Government Projects, by O. P. Easterwood, Jr. *Railway Age*, August 26, 1950, pp. 23-27. Illus. "... The work is being done by the Army's Corps of Engineers, the Interior Department's Bureau of Reclamation and the Tennessee Valley Authority ... these agencies have relocated over 800 miles of trackage ..."

Railroading Around the World, by S. Kip Farrington, Jr., v-p, Kelly Nason, Inc. New York Railroad Club Official Proceedings, May 18, 1950, pp. 217-234. "... We will start with Australia ..." (p. 219). New Zealand, p. 221-222; Brazil, p. 222-223; Uruguay, p. 223; Chile, p. 223-225; Bolivia, p. 225-226; Peru, p. 226-227; Ecuador, p. 227; Holland, p. 227; Denmark, p. 227; Sweden, p. 228-229; Norway, p. 229-231.

Railroads and Lake Ships Team Up in Mines-to-Mills Cargo Movement. Lake Carriers' Association Bulletin, July 1950, pp. 1-4.

Railroads' Central Research Laboratory Formally Dedicated—Ceremonies on May 26 Marked by Luncheon and Short Talks; Many Railroad Executives Hear Faricy and Johnson. *Railway Age*, June 3, 1950, pp. 34 (1082)—38 (1086). Illus. At Illinois Institute of Technology, Chicago, Ill.

The Railways of Korea—Review of the Development of the System in Fifty Years, Mainly by the Japanese. *Railway Gazette*, July 28, 1950, pp. 94-95, 97. Map p. 94.

La Reconstruction des Gares de la Rive Gauche de la Seine à Rouen, by Latron and Legrand. Illus. Maps showing "Rouen-G" and "Rouen-O" prewar and present, p. 350. Brief history of railroads serving Rouen since 1843, p. 347.

Red de Ferrocarriles en Colombia [Map in colors]. *Revista del Consejo Administrativo de los FF. CC. Nacionales* No. 79—Bogotá, Colombia—July-August 1950, front cover. Railroads operated, under construction, surveyed and projected. See also on pp. 3-17, *Los Ferrocarriles Nacionales en la Economía del País*, by Guillermo Gamba, who spoke to the Sociedad Colombiano de Ingenieros, June 12, 1950, as an engineer who had railroaded for 25 years, rather than as a member of Consejo Administrativo, and Administrador General of the Colombian National Railroads.

Report from Israel—Mechanization of Maintenance Work and Adoption of Mass Transportation Techniques Necessary, Perlman Says. Illus. and Map. *Railway Age*, June 10, 1950, pp. 1137-1139. Interview after A. E. Perlman, g. m., D&RGW, returned from 30-day inspection of Israel Railway.

"... the scarcity of folklore as well as of formal literature, about railroaders and railroading ..."—Letter from Marquis Childs published as Department of Amplification, in *The New Yorker*, May 27, 1950, pp. 81-86. Offers the Story of "Ol' Gilroy"—a Rock Island engineer in 1927.

El Super—Dr. Nicolas Bernal Bernal. Revista del Ferrocarril de Antioquia, Medellin, Colombia, No. 1804, Jan.-Feb. 1950, p. 5. Tribute to railroad superintendents, especially Dr. Bernal who took over when Dr. Ospina C. was elected President of Colombia. Dr. Ospina's photograph is on front cover with caption: "Presidente de la Republica—Ex-Superintendente del Ferrocarril de Antioquia." This Revista is free on request to Secretaria, Ferrocarril de Antioquia, Medellin, Colombia.

A Terrain Study of Canada, by Col. H. W. Love, chief engineer, Canadian Army. Map: Regions according to major physical characteristics. Illus. "The Arctic Plain" p. 351, mentions: "... Winter travel conditions are greatly improved by the freezing of the water bodies and muskeg. Snow cover is shallow and hard packed and lies from eight to nine months so that tractor trains and over-snow vehicles can operate with freedom. In the area between Churchill, Baker Lake, and the east end of Great Slave Lake this means of transport is unrestricted. Elsewhere going is less continuous but still feasible . . ."

Underground. The New Yorker, September 23, 1950, pp. 26-27. John Ponce, superintendent of building maintenance, New York Central, conducted one of the New Yorker's staff "on our most daring adventure of the year" to explain the protection of the steel viaduct under Park Avenue from "leaks" in Park Avenue. "... The Central has a permanent subsurface right of way . . ."

Wood Fuel for Industry and Railways, by Bo Nikander and Vaino Tamminen, Finnish State Railways. Railway Gazette, July 14, 1950, pp. 32-33. Summary of paper at 4th World Power Conference, July 12. "... the use of wood fuel on railway locomotives was not treated merely as a question of fuel . . ."

In Memory of

CHARLES F. DURGIN

Annual Member

10 Fairview Ave., Derry, New Hampshire

Who Died on March 16, 1950

FRANKLIN S. NICHOLSON

Annual Member

P. O. Box 491, Newport, Rhode Island

Who Died on March 15, 1950

HARRY W. RHINELANDER

Life Member

4381 Forest Park Blvd., St. Louis 8, Missouri

Who Died on July 29, 1950

A. E. SHIPLEY

Annual Member

Agua Dulce 55, Havana, Cuba

Who Died on June 4, 1950

CHARLES G. WOODWARD

Life Member

742 Asylum St., Hartford, Connecticut

Who Died on February 1, 1950

JOHN COOK WOOLLVEN

Annual Member

Lindenwold, New Jersey

Who Died on April 28, 1950





